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EDITORIAL.

THE POPULARIZATION OF THE ANTI-TUBERCULOSIS MOVEMENT.

ALL nations are realizing that the anti-tuberculosis campaign, to be successful, must be a people's movement. Consumption and other forms of tuberculous disease are met with, it is true, in all ranks of society. It is not among the privileged classes that tuberculosis reaps its richest harvest, but among the ignorant, apathetic, underfed, overworked, ill-bred, reckless members of the neglected and neglecting masses. In the homes of the workers and in the hovels of the poor tuberculosis breeds and spreads an ever-present, death-dealing pestilence. No efforts to extirpate this scourge can have more than limited success unless they touch the life and thought and habits of the people. In every civilized land the anti-tuberculosis campaign must be waged by the people for the people. It is to be hoped that medical and other scientifically trained officers will always be ready to lead the forces, and, indeed, it is impossible to conceive of the accomplishment of any permanent victory without the active co-operation of responsible members of the public health service. The day has passed when any limited and restricted, or purely professional, attitude of mind can be allowed controlling influence. The tuberculosis question is but a part of the greater problem which is slowly being solved by the education of the people. The recent International Congress on Tuberculosis held in Washington has done

much to stimulate the popular imagination and energize practical effort throughout the United States and Canada.

The throwing open of tuberculosis exhibitions to all sorts and conditions of men and women, and even children, has proved a remarkably speedy and effective means of educating public opinion. The great International Tuberculosis Exhibition at the American Museum of Natural History in New York has been visited by 750,000 persons. A "Jewish Day" was arranged for, at which the attendance reached the surprising total of 63,112. It is also reported that the Tuberculosis Exhibition at Montreal, in the Dominion of Canada, "was open freely to and visited by all classes, from the boys and girls of the public schools (of whom no less than 25,000 were in attendance) to His Excellency the Governor-General."

This democratic wave arising in the West, it must be hoped, will soon reach and influence the all too sluggish anti-tuberculosis movement in this and other old-fashioned lands. In trans-atlantic countries laymen are generously finding munitions for the anti-tuberculosis war; the general press is aiding and abetting the crusade; churches and public institutions are rendering enthusiastic assistance; economists and workers engaged in every form of enterprise seeking social advance are co-operating, and hygienists and medical practitioners of every rank are rendering invaluable assistance.

If reports speak true, it would seem that in the West patriots, philanthropists, and physicians are all engaged in the endeavour to popularize the anti-tuberculosis movement. Extremists will doubtless lead into extravagances, faddists will flock to the fray, and in the varied excursions and experiments now being attempted errors will be made.

One thing is certain, this campaign must be conducted on the highest plane, and in accordance with the spirit, ideals and methods of the purest Crusaders.

If members of the medical profession will be true to the basal principles underlying their life's work, they will not be slow to render service as advisers, teachers, and guides, and so secure a scientific condnct and rational direction for the popularization of the anti-tuberculosis movement.

Of this we may be sure, that success will only come to those who knowing strive and serve.

SPECIAL ARTICLES.

THE ANTI-TUBERCULOSIS MOVEMENT IN THE NETHERLANDS.

By W. J. VAN GORKOM,
CONSULTING PHYSICIAN,
Secretary-Treasurer of the Dutch Central Association for the Prevention of Consumption; Editor of *Tuberculose*, organ of the "Nederlandsche Centrale Vereeniging tot bestrijding der tuberculose."

THE Netherlands may well claim an important place among progressive nations strenuously combating that common foe of mankind—tuberculosis. Although a small country, with limited resources, Holland has accomplished rather much. Before detailing what has been done, it will be well to state briefly certain facts about the country. The Netherlands, or kingdom of Holland, is a maritime country situated on the North Sea, consisting of eleven provinces, with a total area of 12,582 square miles. Its population in 1907 was estimated as 5,747,269. The land is generally low and flat, intersected by watercourses, and much is given up to pasture. The greater number of the inhabitants are engaged in agricultural pursuits. In its chief towns—Amsterdam and Rotterdam—urban conditions exercise prejudicial effect on many of the people. Much tuberculosis prevails both in the towns and the villages. Incalculable loss and suffering arise from the devastating influences of this scourge.

It is the purpose of this paper to indicate how we are conducting the campaign, and perhaps the lessons which we have learned may not be without value to those engaged in the anti-tuberculosis combat in other lands.

A study of the accompanying tables indicates that the general death-rate in the Netherlands from all causes has diminished from 17·2 to 14·6 per 1,000 of the population, but that the *percentage of deaths from tuberculosis has not altogether kept pace with this diminution.* This fact need not astonish us if we keep in mind that as long ago as 1865 a law of sanitation came into force which has brought about a remarkable improvement in the health conditions of the people. Much is also due to the rapid progress made in the last thirty years in general hygiene. In consequence, a marked diminution in the number of deaths from infectious disease has resulted. But *tuberculosis*, although itself an infectious disease, *was not included in this sanitary legislation*, and

TABLE I.—SHOWING THE TOTAL NUMBER OF DEATHS IN THE NETHERLANDS FROM ALL CAUSES AND THE MORTALITY FROM TUBERCULOSIS DURING THE YEARS 1901 TO 1907 INCLUSIVE, ACCORDING TO THE OFFICIAL REPORTS PUBLISHED BY THE CENTRAL BUREAU OF STATISTICS.[1]

	1901.	1902.	1903.	1904.	1905.	1906.	1907.
Population of the Netherlands ...	5,263,232	5,347,182	5,430,942	5,509,659	5,591,695	5,672,237	5,747,269
Mortality from tuberculosis of the lungs	7,171	7,028	7,117	7,081	7,536	7,531	7,403
Mortality from tuberculosis of the brain	1,113	1,050	1,069	1,077	1,070	1,194	1,129
Mortality from other forms of tuberculosis	1,835	1,850	1,978	1,922	1,360	1,293	1,331
Total mortality from all forms of tuberculosis	10,119	9,928	10,164	10,080	9,966	10,018	9,863
Total number of deaths from all causes	89,803	86,248	83,933	87,091	85,030	83,259	83,350

TABLE II.—INDICATING DEATH-RATE FROM TUBERCULOSIS IN THE NETHERLANDS PER 10,000 INHABITANTS.

Year.	Pulmonary Tuberculosis.	All Forms of Tuberculosis.	All Forms of Disease.
1901	13·73	19·37	172·00
1902	13·25	18·72	162·63
1903	13·21	18·86	155·74
1904	12·94	18·42	159·20
1905	13·57	17·93	153·16
1906	13·37	17·79	147·83
1907	12·97	17·28	145·98

TABLE III.—PERCENTAGE OF DEATHS FROM TUBERCULOSIS AS COMPARED WITH THE TOTAL NUMBER OF DEATHS.

Year.	Deaths from Pulmonary Tuberculosis expressed as Percentages of the Total Number of Deaths.	Deaths from all Forms of Tuberculosis expressed as Percentages of the Total Number of Deaths.
1901	7·98	11·26
1902	8·15	11·52
1903	8·48	12·11
1904	8·13	11·57
1905	8·86	11·71
1906	9·04	12·02
1907	8·88	11·83

[1] Owing to a change in the nomenclature of the causes of death made in 1900, we are only able to compare the seven first years of the present century.

but few organized efforts have been made to educate the people as to the best means of combating the malady. This will explain the relatively small diminution in the deaths from tuberculosis as compared with the progress in the health conditions of the people generally. It is only some ten years since the first really effective

FIG. 1.—ORANJE-NASSAU'S OORD NATIONAL SANATORIUM.

steps were taken to prevent the spread of consumption. The initial requirements were the provision of funds for the treatment of consumptive patients of slender means in sanatoria in their own country. In 1898, when Queen Emma laid down the regency of the country and the guardianship of her daughter, Queen Wilhelmina,

at the latter's coming of age, she presented to the Dutch nation her estate, Oranje-Nassau's Oord, at Renkum (Gelderland), for a sanatorium, at the same time giving the sum of 250,000 florins (about £21,000) to fully equip it for its purpose (Figs. 1 and 2). This latter amount had been presented to Her Majesty by the people as a token

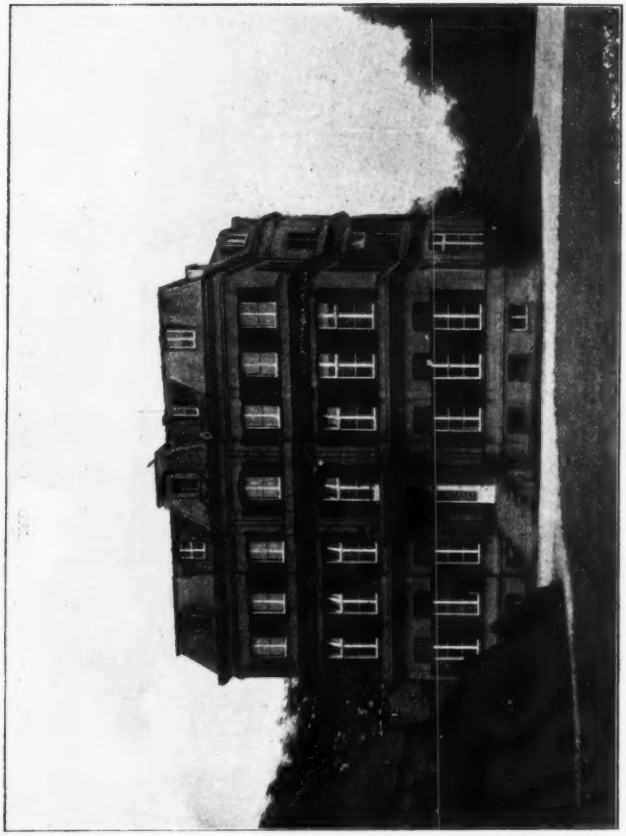


FIG. 2.—ORANJE-NASSAU'S OORD NATIONAL SANATORIUM: THE OLD PALACE.

of their high esteem and gratitude for the able way in which she had managed the affairs of State during her regency. The Queen-Mother also instituted a fund called "the Queen Emma Fund," out of which is allowed a sum of 0·80 florins (equivalent to 1s. 4d.) to fifty of those patients unable to meet the full charges, the nursing fee being 3s. 8d. For well-to-do people the cost is from 6s. 8d. to 8s. 4d. a day. There are a hundred beds available.

In 1897, a year before the above sanatorium was established, an Association for the Assistance of Persons of Dutch Nationality suffering from Lung Disease was founded at Davoz-Platz (Switzerland), and a fairly large Sanatorium built, with beds for fifty patients.

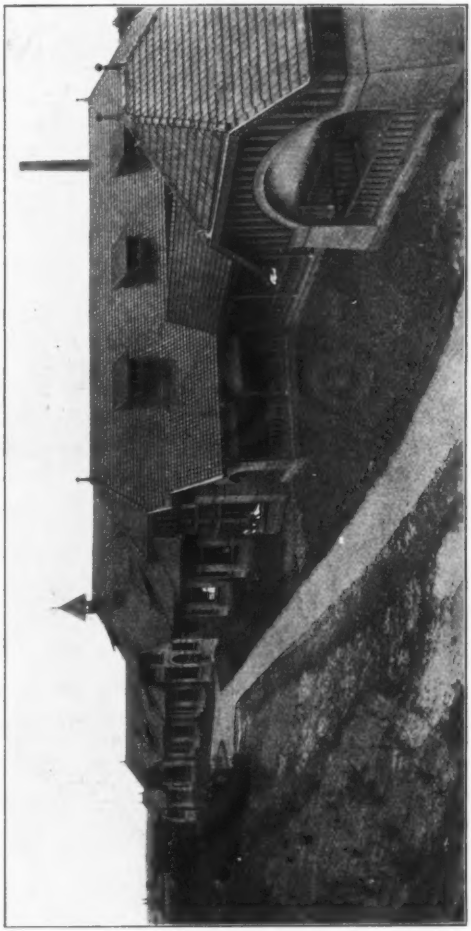


FIG. 3.—HELLENDOORN SANATORIUM FOR CONSUMPTIVE PATIENTS, SHOWING OPEN-AIR VERANDAS.

The nursing fee in this institution is 2·9 florins a day, but a reduction up to 1·80 florins (3s.) is granted to a maximum of ten patients. One of the directors of this Dutch Association, acting in Switzerland, organized a committee at the Hague, in Holland, with

several branches in various other parts of the country. In 1898 the "Association for Establishing and Conducting Public Sanatoria for Sufferers from Pulmonary Troubles" was founded. In 1902 this association opened its first public sanatorium at Hellendoorn, in the province of Overyssel (Fig. 3). Of its fifty-four beds, eight are free. The charges for residence, including medical attendance, are 2 florins a day. The Hellendoorn fund at the same time supplies a limited number of patients with pecuniary assistance.

In 1903 the "Amsterdam Public Sanatorium" was opened at Hooglaren (North Holland). The prices charged are much the same as those at Hellendoorn. The sanatorium accommodates sixty patients, a small number again getting support from the Hooglaren fund. Twenty additional beds are to be provided during the coming year. Both the Hellendoorn and the Hooglaren Sanatoria are supported by voluntary contributions, with a small subsidy from the Government, and patients' fees.

There is a private sanatorium at Putten (Gelderland), where thirty to forty patients can be received at a cost of from 2 to 2½ florins per day. The founder of the Putten Sanatorium (Dr. Haentjens) opened the first and largest part of the building to people of means in the year 1900. He was convinced from the first of the practicability and desirability of arresting tuberculosis under the ordinary climatic conditions of the country, and took the initiative by erecting and managing at his own risk the first private sanatorium in the Netherlands.

There are at present a good many private institutions of a similar kind. Some are situated in well-wooded districts, others by the seaside. Both the private and the public sanatoria boast of good results. They have had to overcome strenuous opposition: even from physicians. It may now be admitted that these establishments have justified their existence. They can compare favourably with the sanatoria in the Swiss mountains, and they certainly have proved their right to be generously supported.

Some projects for the founding of new popular sanatoria are at the present moment under consideration. A sanatorium is in course of erection in the province of Friesland. This Frisian popular sanatorium, "Herema State," near Joure, will be opened in the course of 1909. Here there are a hundred beds, and the projectors hope to be able to provide nursing and attendance for consumptives in the first stage of the disease at the small cost of 2s. 1d. per day.

At Harderwyk, on the shores of the Zuyder Sea, a small public sanatorium ("Sonnevanck") was opened in October of 1908 to patients of the "Christian Reformed" faith. There are thirty-six beds for the present; charges: 2 to 2·50 florins. The Roman Catholics are

following this example, and have a sanatorium of their own at Groesbeek (Gelderland).

Besides these, there are a number of establishments supported by private charities for the seaside treatment of tuberculous and

FIG. 4.—CHILDREN'S HOSPITAL AT KATWYK-ON-THE-SEA FOR TUBERCULOUS AND TUBERCULOUSLY-DISPOSED CASES.

scrofulous children. The oldest and first in rank is the Sophia Stichting at Scheveningen, founded in 1880 by the late Queen Sophia, with 100 beds. The nursing-fee is only 1s. 3d. to 1s. 8d. a day. Next in importance may be mentioned the Sea Hospitium at Katwyk-on-

the-Sea, which was opened in 1908, with 100 beds, and rather higher prices (1 to 1½ florins). (Fig. 4.)

From the foregoing statements it will be seen that a considerable number of beds are provided for sufferers from tuberculosis and for those predisposed to the disease. These are still inadequate: the free beds are too few and the prices are really too high to benefit any considerable proportion of the poorer classes.

No compulsory insurance against "invalidity and sickness" exists in the Netherlands. The working man's mutual corporations having a sick fund are very few in number, and even then they do not include insurance for the tuberculous sick. Municipalities have not yet, as a rule, made provision for any sickness and invalidity fund for consumptive patients. Consequently, philanthropic efforts are being taken to make provision for the reception and treatment of adults and children suffering from pulmonary and other forms of tuberculosis in sanatoria and hospitals. This method naturally is very uncertain, as sufficient funds are not always forthcoming. Such a condition of affairs is, of course, highly unsatisfactory and discouraging, but we hope that eventually a law will be passed by our Government to insure against "sickness and invalidity."[1]

Should such law be passed, it would be necessary to guard against the mistake of spending moneys on the building of sanatoria exclusively for lung-sufferers in the first stage of the disease. What is urgently needed are nursing-homes for the treatment of advanced cases. There is not a single institution of the kind in Holland, although in England and Wales it is held by some that the isolation of advanced cases is one of the best means for effecting a diminution of the mortality. Nearly all the experts in the Netherlands are agreed that, to wage war successfully against the "white plague," such establishments have become a necessity.

The need of the above-mentioned powerful adjuncts in the strife against tuberculosis is only partially lessened by the gradually increasing number of "tuberculosis dispensaries" for the combating of tuberculosis, modelled after the methods of Calmette and Malvoz, who were the first on the Continent of Europe to introduce this system. But, in my opinion, we must ascribe the priority to Dr. R. W. Philip, as it was he who founded the Victoria Dispensary in Edinburgh in 1887. He introduced central and concerted action in regard to the combating of pulmonary tuberculosis and supervised home treatment.

The first object consists in instructing the patients how to prevent or minimize the risk of infection to others.

[1] The two former Cabinets brought a bill dealing with sickness insurance before Parliament, but it never came up for discussion, owing to the change in Ministry. The present Government, however, will probably elaborate a new bill for sickness and invalidity insurance.

In sixteen Dutch towns—namely, Amersfoort, Amsterdam, Arnhem, Deventer, the Hague, Haarlem, Hengelo, Hilvorsum, Leeuwarden, Leiden, Rotterdam, Nymwegen, Utrecht, Zaandam, Zutphen, and Zwolle—local societies have already been formed for applying these methods, with the assistance of dispensaries, known here as "consultation bureaux." In an equal number of towns preparatory steps are being taken for establishing tuberculosis dispensaries, and it is confidently expected that, through the constant and energetic efforts of the Netherlands Central Association, the Patroness of which is Her Majesty the Queen-Mother, it will not be so very long before every place of any importance will possess one.

FIG. 5.—SCENE IN THE HOME OF A POOR CONSUMPTIVE, BEFORE BEING ASSISTED BY THE TUBERCULOSIS DISPENSARY AT THE HAGUE.
Drawn by J. Hoynck van Papendrecht.

All these local societies employ one or more salaried health-visitors or investigators, called controllers or inspectors, and in some districts they are aided by volunteer district visitors.

The medical men who, in the dispensaries, examine the patients, and in concert with the family doctor give them treatment, regulate their mode of living, and give hygienic and prophylactic advice to the other members of their family, are not yet, as a rule, paid a stipend for these services. The medical treatment of the patients is, with few exceptions, left entirely to the family physician. Gradually, however, all this is being altered.

At Rotterdam, among other places, where in 1903 the first dispensary in the Netherlands was instituted, there has recently been inaugurated systematic treatment with tuberculin, always in consultation with, and subject to the approval of, the patients' family physician.

Besides these dispensaries, and unconnected with them, there have been established in a few places, such as, for instance, Utrecht and the Hague, separate tuberculosis policlinics, under the care of specialists in tuberculosis, where tuberculin therapy is practised.

Besides all this, it was made possible by moneys obtained through collections, gifts, and contributions, to build in the neighbourhood of several towns revolving *liegehallen*, where indigent patients might be received to follow the open-air cure. A small kitchen and dining-room are generally attached for serving the meals. There are no bedrooms obtainable, so in the evening the patients are obliged to return to their own homes.

In Rotterdam, however, the society has rented several rooms in the vicinity of the liegehallen, where patients may also pass the night. They are under the direct control of the inspector of the dispensary.

The establishment at the Hague has a house attached, which contains, besides the dining-room and kitchen, a consulting-room, several bathrooms, and two bedrooms, or, rather, sleeping apartments, one intended for six male patients, the other for six female patients. These rooms are destined for patients too ill to return home at night. All others go to and fro every day. The treatment is gratuitous, all expenses being met by the funds of the society.

Another effective measure taken by the local societies is the thorough disinfection of dwellings in which a death from consumption has taken place or from which consumptives have moved. Clothes and bedding of patients who expectorate a great deal are disinfected. The societies endeavour to educate the general public in the principles of hygiene; they send adults and children of tuberculous tendencies to the seaside and out into the country into vacation colonies, so that through the medium of good food and pure air they may have a chance of recovery.

FIG. 6.—LIEGEHALLE OF THE TUBERCULOSIS DISPENSARY AT THE HAGUE.

The local society of Rotterdam entirely furnished out of its own fund the necessary moneys for establishing and conducting the hospice of Katwyk-on-the-Sea, of which we have already spoken. The principal duty of the consultation bureau, however, is to secure the prevention of tuberculosis by prescribing and enforcing the strict observance of all precautions and measures necessary for the *prevention of contagion*, for disinfecting the dwellings of the impecunious and very poor, and providing all materials required for carrying out these measures.

It has been carefully avoided to give a purely philanthropic character to this work. Yet when it is imperative to isolate a patient by the provision of a separate bed, and very often a separate room, but where means to procure them are not forthcoming, the consultation bureau supplies the bed, blankets, and pillows as a loan, sees that the patients are provided with spittoons, handkerchiefs, or balls of cotton-wool for coughing, and if the dwelling is inadequate, also pays the surplus rent for a larger house, sends disinfectants, and sometimes even strengthening food for the patient or for members of his family in danger of infection.

The Government, the town authorities, and some of the provincial boards give a grant to the anti-tuberculosis movement, and, besides, private initiative is found everywhere willing to give its support wherever the matter is taken up systematically.

These local societies are increasing in number all over the country. They are also being established in provincial towns with a small population, and villages even follow in these steps.

The *modus operandi* there is the same as in the cities, only there are no consultation bureaux, and the examination and disinfecting of houses and properties are left entirely to the care of the resident doctor and his assistant, and the medical attendance is left altogether to him, or, if he has a colleague, in concert and in consultation with his colleague, always in connection and under the supervision of the local society.

At present there are already four places in the Netherlands where such local societies act—namely, at den Helder, Lochem, Maassluis, and Norg—and their example will soon be followed by others.

In some places in Holland it was deemed unnecessary to establish special local societies for the prevention of tuberculosis, because there were corporations which had taken upon themselves the care and nursing of the sick in their own homes. They, too, engage in the strife against tuberculosis, and are known as "The White Cross," "The Green Cross," "District Nursing," "Care of the Sick," and similar organizations. Their fame is far-spread, and their beneficial influence is felt everywhere.

In Bodegraven, Breda, Franeker, Koog a.d. Zaan, Bolsward,

FIG. 7.—SANATORIUM FOR CONSUMPTIVE DAY-PATIENTS IN CONNECTION WITH THE LOCAL SOCIETY AT DEVENTER, OVERYSSEL.

Kinderdijk, St. Oedenrode, Schijndel, Ysselmonde, and Zwammerdam, these bodies all unite in the same purpose of uprooting tuberculosis; and it is expected that before long this energetic movement forward will bring about a greater activity on the part of all societies in the onslaught of the dreaded disease.

To these bodies the Government also gives grants. It stands to reason that such small corporations are unable to afford the erection of day-sanatoria and other expensive structures. The country-people live at a great distance from one another, so they have to make use of individual tents, which are built on the same plan as the lying-halls, and can be turned about to avoid the wind. They can be put up and taken down at a moment's notice, and are very handy for carrying over to the patient's abode.

The smaller societies also endeavour to instil into their patients the importance of sanitary observances, and they hold classes for practical, hygienic, and prophylactic supervision and instruction in the homes of the poor.

It is noteworthy to state here that in several parts of Holland there are societies which care for sufferers from lupus. These also enjoy a grant from the Government, for which purpose a certain sum is always set aside.

For combating bovine-tuberculosis a regular service exists, involving the outlay of several hundreds of thousands of florins per annum; but to go into details about this would exceed my space-limit.

I cannot conclude this article without mentioning the Netherlands Central Association for the combating of tuberculosis, of which I have the honour to be secretary. This is the same society which, under the name of the Central Committee, received the members of the Fifth International Conference at the Hague in 1906. It underwent a complete reorganization in 1907, and is now the representative central body, wherein all the various corporations for the combating of tuberculosis are merged or, as one may say, are concentrically projected. The Board of Administration of this central society is principally composed of delegates from all sanatoria and local societies. The governing committee consists of five members, and is entrusted with the administration of all affairs. There is a paid secretary-treasurer, who is also the responsible editor of the organ of the society, the periodical *Tuberculose*, which is published four or six times a year. This publication is sent gratis to all members of the society, and to a large number of those interested in the movement. At present the circulation averages 12,000 copies of each issue. The members of the society pay a contribution of at least one florin annually. This association also publishes popular pamphlets, giving advice to parents and guardians, and issues coloured picture-cards,

which may be found, among other places, in every railway-station and in every post-office. It also holds lantern lectures, which greatly help in enlightening the public mind—in a word, the Central Association concentrates all its energy upon the great work, the anti-tuberculosis education of the people, and endeavours as much as lies in its power to excite the medical profession to active interest. Moreover, it organizes the warfare against tuberculosis throughout the land, promotes the establishing of consultation bureaux, helps in the formation of other local societies, and enjoys the privilege of being consulted by the Government as to the best means of combating the national scourge of tuberculosis.

Last year the amount appropriated as subsidies for the combating of tuberculosis is 50,000 florins, out of which the Government has granted 10,000 florins to the Central Association.

For the year 1909 the Home Secretary has proposed a subsidy of 75,000 florins for the joint purposes to the second Chamber of the States-General. At the proposal of one of the members of this Chamber, this sum of money was increased, by general votes, to 100,000 florins, of which 17,000 florins will be granted as subsidy for the Central Association. It is confidently believed that in future public opinion will urge the Government to grant an even much larger subsidy to this popular cause.

TUBERCULOSIS IN SOUTH AFRICA.[1]

By NEIL MACVICAR,

M.D., D.P.H.,

Medical Officer to the Lovedale Missionary Institution, South Africa.

The original occupants of South Africa seem to have been Bushmen and Hottentots. The former are now almost extinct. The latter are represented by the coloured people who, numbering under half a million, form the servant class in the Western Province of Cape Colony. These primitive peoples were invaded by the Bantu, who now occupy a large portion of South Africa and constitute nearly three-fourths of its population (nearly four and a half millions). The two chief subdivisions of the Bantu are—the Zulu-Kafir section, who occupy the coast lands from Mozambique right round to about Port Elizabeth in the

[1] The present article is an abstract of a thesis submitted for the Doctorate of Medicine of the University of Edinburgh, and printed *in extenso* in the *South African Medical Record*, June, July, August, 1908.

Cape Colony and the Bechuana-Basuto section, who occupy a large part of the central plateau and the mountainous country of Basutoland. The European invasion was first Portuguese, then Dutch, later English. The Europeans, who now number nearly one and a quarter millions, are scattered over the whole country. Lastly must be mentioned the Natal Indian community, numbering 100,000.

Prevalence of Tuberculosis among the Different Races.

In no part of South Africa is tuberculosis common among the European settlers. The death-rate in England and Wales from tuberculosis was, in the year 1902, 1·62 per 1,000 of the population. The South African figures for Europeans are—in Cape Colony (thirty-five chief towns), 1·48; Natal (whole colony), just under 1; and the Orange River Colony (towns, 1904), 1·37 per 1,000. If, however, imported cases are eliminated, these figures can be greatly reduced. A recent inquiry elicited the fact that thirty-six of the more experienced practitioners in the Orange River Colony had seen among them only forty cases of tuberculosis in those Europeans who had never been out of South Africa. The Registrar of the Orange River Colony, commenting upon the 1904 figures, says: "Practically all deaths from phthisis were those of immigrants." So much could not be said for Cape Colony and Natal, but even in these colonies it is probable that at least half of the white patients dying from tuberculosis are from Europe.

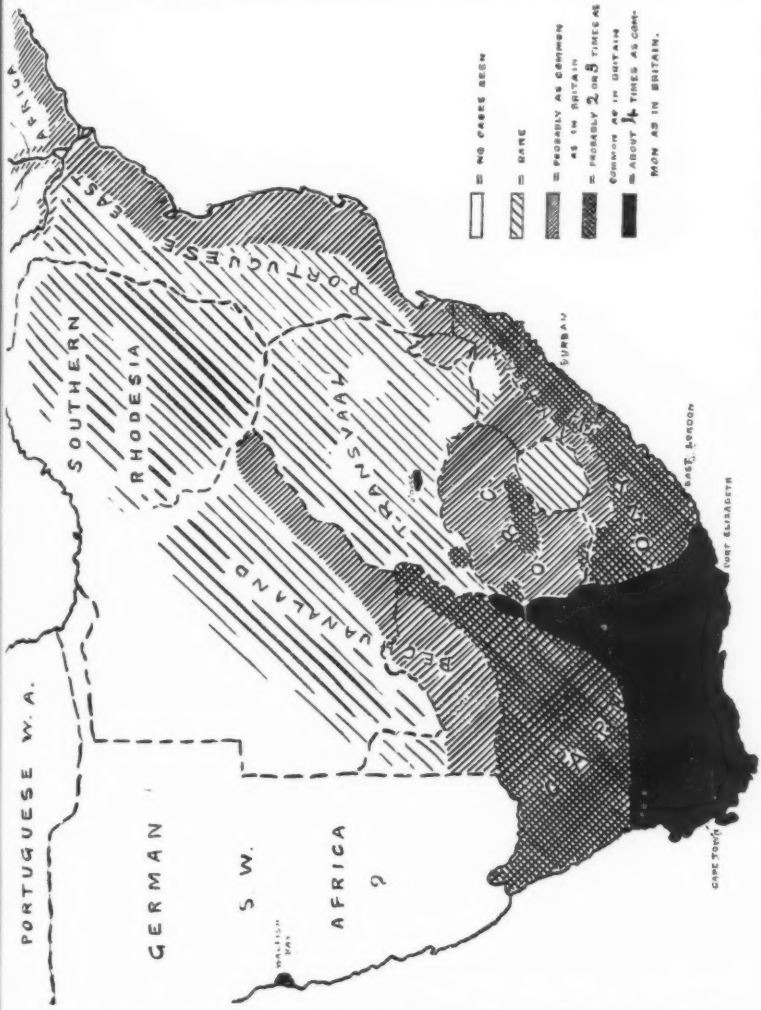
It is, however, different with the Indians in Natal. Among them tuberculosis is decidedly common, the mortality from this cause averaging about 2·5 per 1,000.

The Bantu population is affected very unequally by tuberculosis. In some districts, especially in Natal and in what are called the Native Territories in the East of Cape Colony, the people suffer much. Figures are not available, but probably in many places the mortality from this cause is two or three times that of Britain. Many of the Zulu prisoners taken during the rebellion of two years ago had, after a time, to be admitted to hospital or liberated on account of their tuberculous condition. On the other hand, there are still a few districts in the interior of South Africa, especially in the Transvaal and on the Upper Zambezi (Lewanika's country), where tuberculous disease is almost, if not quite, unknown among the Bantu.

The coloured people in the Western Province of the Cape Colony suffer from tuberculosis more severely than any of the other races. Both in the towns and country districts the mortality from this cause is high, averaging quite four times the rate in Britain. In Cape Town, for example, the coloured mortality from tuberculosis averages 7·1 per 1,000; in Worcester, 8·3; Stellenbosch, 7·7; Wellington, 5·1; Malmesbury, 9·3; Beaufort West (on the Karroo), 14·3.

Bovine Tuberculosis.

In the immediate neighbourhood of Cape Town, tuberculosis is common amongst dairy cattle, and occasional outbreaks have been



MAP INDICATING DISTRIBUTION OF TUBERCULOSIS AMONG SOUTH AFRICAN NATIVES AND COLOURED PEOPLE.

noted at other centres. In most instances these outbreaks have been traced to imported cattle. With these exceptions, veterinary surgeons in all the colonies are agreed that the disease is rare among cattle

owned by Europeans, and practically unknown among native cattle. The interesting fact is thus brought to light that while in certain parts of South Africa, notably in the Native Territories and Natal, the Bantu people are suffering severely from tuberculosis, their cattle—they are a cattle-keeping, milk-drinking race—are practically tuberculosis-free. In these circumstances one would expect abdominal tuberculosis to be uncommon, and all the available evidence goes to show that this is the case.

Recent Spread of Tuberculosis.

From the evidence of Dr. Livingstone and others, the fact is pretty well established that the Bechuana-Basuto race inhabiting the high-lying interior of South Africa were free from tuberculosis until about fifty years ago. Since then it has been introduced and is spreading among them, in some places—for example, Mafeking and Thaba Nchu—being already very common.

Tuberculosis has been so long known among the Kaffir-Zulu people inhabiting the coast-belt that it is hard to say if it was originally absent; but in some places it is still rare, and there seems ground for the current belief that it has been introduced in modern times.

Possible Origin of Imported Tuberculosis.

Long before Vasco da Gama rounded the Cape, Asiatic traders were busy on the East African coast. There is a tradition in Portuguese East Africa that consumption "came from the Indians," and it is quite possible that this may have been the original source of the disease among the Zulus. As regards East Central Africa, the evidence points to the Zanzibar Arabs as the chief introducers of tuberculosis. It is met with along the old slave routes; it is still absent from regions remote from these routes.

During recent years there has been a constant stream of consumptive patients arriving in South Africa from Europe. Cases have occurred in which farmers' families have been infected from phthisical boarders, but as a whole the local white population has escaped infection to an extraordinary extent. My impression is that this immunity is due to the general high standard of comfort enjoyed by Europeans.

The original infection of the coloured population, however, is no recent occurrence. It seems quite possible that the disease was introduced by the early settlers, and that among the whites it has tended to die out because of the generally healthy conditions under which they live, while among their coloured and Bantu servants it

has spread owing to their crowded dwellings and insanitary habits. The houses of the Bantu are usually round huts with mud floors, dark and sunless. The inmates commonly sleep on the floor, and a phthisical patient expectorates upon the floor. Most of the coloured people have still smaller and more squalid dwellings.

I have records of many families of Bantu and coloured people among whom infection could be traced from individual to individual. The disease is also being distributed widely and rapidly through the agency of labour centres. It has been suggested that at the gold-mines on the Rand the underground workings have become infected. Whether this is so or not, it is certain that workmen are returning from the mines with phthisis to districts where the disease was unknown before.

The Present Position Summarized.

The present position, then, in South Africa is that tuberculosis is uncommon and not spreading among the Europeans; it is rather common among the Indians; it is spreading among the Bantu, being already frequent in many places; while among the coloured people it is met with so extensively that—aided by drunkenness and a heavy infant mortality—it threatens to extinguish the race (Fig. 1). But these differences do not seem to be due to race so much as to environment, and especially to housing conditions. In some of the towns where Bantu people share the same squalid quarters with the coloured population they suffer just as much from tuberculosis as the latter. And where there is squalor among the whites, they, too, suffer, and present exceptions to the rule above indicated.

There is no doubt about the beneficial effects of the dry upland climate of the interior upon many European phthisical patients; but neither dryness nor altitude is having any appreciable effect in arresting the spread of tuberculosis among the natives. Some of the highest and driest towns in South Africa are among those with the heaviest native mortality from tuberculosis.

The chief danger to white people is not now from immigrant consumptives, who generally know how to dispose of their sputum; nor is it from milk, for few cattle are infected, and most Europeans boil their milk. It is from native and coloured servants and workmen.

The problem of tuberculosis in South Africa is twofold: First, how to prevent the spread of the disease at labour centres and other places where natives are crowded together; and, secondly, how to prevent its spread in families. The former is a question for white employers and others to deal with; the latter is largely a question for the natives themselves. Europeans, however, can help in various ways. For example, by health teaching in schools, by attention to

insanitary housing on the part of municipalities, and by the educative influence of hospitals and sanatoria. There are at present no sanatoria for Bantu or coloured people, and those established for Europeans seem to have had but little success.[1] Municipal authorities are pressing the Cape Government to establish sanatoria, but the financial condition of the country does not permit of any such expenditure at present. There is no health teaching as yet in native schools. A Parliamentary Committee has just made a recommendation on this subject, which we may hope in time to see carried into effect.

[1] The following are the more important sanatoria available for Europeans in South Africa: The Springkell Sanatorium, Modderfontein, near Johannesburg, Transvaal; the Sanatorium, Belfast, Transvaal (Dr. A. E. H. Pakes); the Sanatorium, Nottingham Road, Natal (Dr. A. A. H. Lawrence); Mrs. Rendell Black's Sanatorium, Laingsburg, Cape Colony. These are all private sanatoria. There are no public sanatoria. Most of the South African general hospitals take in phthisical cases. An Association for the Prevention of Consumption was founded a few years ago by Dr. B. J. Guillemard, of Cape Town. The Association has now changed its name, and deals with general public health, but its chief attention is still given to tuberculosis. It circulates literature and arranges for lectures.

ORIGINAL PAPERS.

HUMAN AND BOVINE TUBERCULOSIS.

By BIRGER OEVERLAND,
M.D.,
District Physician, Meraker.

When Koch and von Behring, in their lectures, had urged contradictory views as regards the relation between human and cattle tuberculosis I began, within my own district, to compare the results of tuberculin tests on cattle with the number of known cases of tuberculosis in the people living on the same farms; for I thought that if the two kinds of the disease were two different varieties, which could not be transferred from one species to another, the appearance per cent. of cattle tuberculosis would be the same, whether regard be had to the farms where no human tuberculosis could be found or to those where the disease was also found amongst the people. If, on the other hand, cattle tuberculosis was the predominant source of infection to man, it might be expected that human tuberculosis would in the main be found to be confined to the farms where there were reacting cows.

Since the commencement of my investigations many researches have shown that cattle and man can mutually infect each other with their more or less heterogeneous bacilli. I therefore determined to ascertain, if possible, whether it is a rare or frequent occurrence on our Norwegian farms for cattle and man to infect each other. I have confined myself to investigations in those parts of the district only where I, after eight years of practice, best knew the sanitary conditions, although it was tempting to include the whole district in order to get as great a number as possible and to reduce the importance of unavoidable errors to the lowest limits. When, therefore, I deal here with cases of tuberculosis in man I refer to cases which I have been able to verify, either through correspondence or my own examination.

The results of my investigations I have made up in four groups:

I. Farms where no positive tuberculin test in the live stock has occurred and where I have not been able to find cases of tuberculosis among the occupants.

II. Farms with no positive tuberculin test in the live stock, but with cases of tuberculosis among the occupants.

III. Farms with positive tuberculin test in the live stock, but with no cases of tuberculosis among the occupants.

IV. Farms with positive tuberculin test in the live stock and with cases of tuberculosis among the occupants.

My material has been procured from 97 farms with, in all, 1,157 tested head of cattle. The data may be grouped as follows :

I. 41 farms with 434 animals.
II. 22 farms with 222 animals.
III. 13 farms with 201 animals (16 reacted).
IV. 21 farms with 300 animals (35 reacted).

Then, of 1,157 animals 51 gave a positive tuberculin reaction—*i.e.*, 4·4 per cent. Of the 522 animals on farms where also tuberculosis among the occupants had occurred, 35, or 6·7 per cent., reacted. Of the 635 animals on farms where no tuberculosis among the occupants could be traced only 16, or 2·5 per cent., gave reaction. In the 97 herds tested one or more animals reacted on 34 farms—*i.e.*, 35 per cent. In the 43 herds on farms where tuberculosis in persons could be pointed out reaction was obtained in 21 of them—*i.e.*, 78·8 per cent. In the 54 herds on farms where no tuberculosis in man could be traced reaction was obtained only in 13 of them—*i.e.*, 24 per cent.

Tuberculosis in man was traceable, through inquiry or examination, on 43 farms out of 97—*i.e.*, 44·3 per cent. Of the 34 farms where the cattle test gave positive reaction tuberculosis in persons was also found on 21—*i.e.*, 61·7 per cent. Tuberculosis in man was only traceable on 22 farms out of the 63 where no reacting animals were found—*i.e.*, 34·9 per cent.

If anything may be inferred from such limited numbers and from investigations where necropsies as well as tuberculin tests of the living persons are wanting, it must be : *tuberculosis in man and tuberculosis in cattle have a certain relation to each other*, as reaction in cattle on farms where human tuberculosis has been traceable occurs nearly three times as frequently as on farms where this disease was not found.

The next question arising is, Does man infect cattle, or do cattle infect man, or can they both infect each other ? Of course, this question is more difficult to answer. But we shall try to draw some conclusions from the different groups and the different cases.

From Group I. no information can be obtained on this point. Group II. shows that tuberculosis may, and does, occur rather often among the occupants of the farm, although the cattle are not infected. Even the persons tending the cattle may be tuberculous without

infecting the latter. On a farm where the disease was so malignant and persistent in the occupants that it was found necessary to demolish the houses, no reaction in the cattle was observed after all. This group also shows that infants, even more of them in one and the same family, may become scrofulous and tuberculous, although the milk cannot be taken as the baneful substance. In the same group are found some cases of peritonitis, too, which do not originate in the milk.

Group III. shows, on the contrary, that the cattle may have tuberculosis, and yet we are not always certain to find symptoms of it in the people. Indeed, we find several instances where children have drunk much unboiled milk from the stocks without being infected.

While, according to their nature, Groups II. and III. can only furnish negative information, Group IV. is the only one from which positive proofs may be expected. Unfortunately, circumstances are also here, as a rule, so complicated or vague that proofs are difficult to find. At all events, it should first have been ascertained whether bacilli only of *typus humanus*—or of *typus bovinus*—were found on the different farms, or whether the tuberculous person and the tuberculous cow had each their own type of bacillus. In this respect, however, my comparisons suffer from the essential defect that microscopical examinations have not been performed.

Group IV. contains entries under twenty-one instances of tuberculosis both in man and in cattle. It is, however, in most cases, quite impossible to form any notion as to which is the infecting agent. I shall mention an example. A girl, formerly healthy and of a healthy family, becomes a milkmaid on a farm where previously no tuberculosis has been recognized; she contracts tuberculosis, returns to her home, and dies one year later. At her home two of the other children are infected from her, and they subsequently die. On the farm where she was a milkmaid the live stock is examined two years after her death, and two of the cows (four and five years old respectively) react. In this case it might be concluded that the girl contracted the disease at some other place—*e.g.*, at school—and afterwards infected the cattle. But the contrary of this might also be possible. The case would, perhaps, appear a little plainer if it were known that the cattle had been examined with a negative result before the girl had come to the farm. Then it would have been more probable, although not proven, that the girl had brought the infection to the cattle. Such a case we have, in my opinion, on another farm in this group. The cattle there were tested in 1901 with a negative result. About that time a new tenant came to the farm, and in his family some cases of tuberculosis occurred after he had moved from the farm again. When the cows were tested once more, in 1906, three of the animals which had been tested in 1901 reacted. The fact that in this case also some of the

farmer's own children exhibited suspicious symptoms, may be due to infection from the cowhouse, but also—and that is perhaps more likely—from the persons, who afterwards died, with whom they had played together.

I also mention some other cases which seem to indicate that the tuberculosis has been conveyed from the dwelling to the cowhouse. On a farm a son returns home as a patient, having stayed for several years at Christiania, and infects his little sister, who is tending the cattle. Two years later one of the three cows of the farm gives reaction. On another farm no tuberculosis had formerly been found. In the summer of 1896 a tuberculous woman from Trondhjem comes to reside at the farm. The remnants of her food and her bed-straw were put into a calf-hutch. During the following summer reaction occurred in this calf, but in none of the other animals.

(A colleague of mine reports a similar case. A tuberculous milk-maid let a calf lick her fingers and hands. The following year it gave reaction, while none of the other animals did.)

I only know one case which favours the belief that man is infected from the cattle. Two small children had tuberculous affections on a farm where two cows in the preceding year had proved tuberculous, but had been kept in the cowhouse, and had been milked with the other cows. At all events, any other source of infection to the children could not be pointed out. They both recovered, however—a fact which possibly might favour the belief frequently maintained that bovine bacilli are less virulent to man.

I proceed now to discuss Meraker district separately, because it *à priori* might be supposed to furnish reliable data, as it up to late years was relatively isolated. The railway was not opened till about 1885, and no highway led through the district. There has never been much communication with other districts. During the latest generation it has been a strongly-marked centre of tuberculosis. Whole families have died and farms have had to be demolished. From the statements of various members of the population I got the impression that phthisis certainly had also occurred here formerly, but that it began to be excessive during the years between 1880 and 1890. I have the impression that the tuberculosis had been brought to a majority of the farms by railway workmen, who had tuberculous individuals in their families. At places where such workmen had lived mere pesthouses were formed. To some of the farms the disease was brought by tuberculous patients from Trondhjem, who went to live at the farms. I have made a control trial, indicated by E. Stören, M.D., of my theory, and the trial has proved the correctness of it, the rate of mortality since the construc-

tion of the railway having undergone marked relative increase in persons aged between fifteen and forty years.

What conditions prevail as regards tuberculosis in cattle? It might be supposed that the undoubted rise of tuberculous cases during the last twenty years was due to infected live stock. On the other side, it might be expected, provided the cattle were very liable to infection with bacilli of human tuberculosis, that a widespread cattle tuberculosis would also be found in Meraker. In this district 19 herds have been tested, giving in my four groups the following results:

I. 12 with 111 animals.
II. 4 with 34 animals.
III. 1 with 6 animals (1 reacted).
IV. 2 with 25 animals (3 reacted).

Of the 176 animals tested in Meraker, 4 gave reaction—*i.e.*, 2·3 per cent. On farms where no tuberculosis was found in the occupants, only 1 animal reacted out of 117—*i.e.*, 0·9 per cent. On farms where tuberculosis was found in the occupants, 3 animals out of 59 gave reaction—*i.e.*, 5 per cent. Positive reaction occurred in 15·8 per cent. of all the farms. Reaction occurred in 7·7 per cent. of farms with no tuberculosis in the occupants, and in 33·3 per cent. of those where tuberculosis was also found in man.

When to this is added the fact that the only reacting cow on a farm where tuberculosis did not exist in the occupants had come from a well-marked tuberculous farm where, however, the live stock had not been tested—and this cow therefore ought to have been classed in Group IV. instead of Group III.—*we get the following result concerning Meraker: Tuberculosis in the cattle does not exist, unless tuberculosis is found also in the occupants of the farm.* On the other hand, also in Meraker there is well-marked tuberculosis in farms with no reacting cow.

It is striking, too, that the percentage of the reactions in the tested cows is smaller for such a clearly-marked district of tuberculosis than it is for the whole country. The causes of this fact may be various. I shall mention some contingencies. It is not a long time since tuberculosis became so marked in the district; perhaps the human virus needs some time to acclimatize itself for its hosts of another species. Or it may be because the cattle of Meraker live for a greater period in the open air. They are let out early in the spring, sometimes when the snow is still covering the earth. In the summer they are upon the mountains. Perhaps such a stay in the open air makes them immune against the virus; or, again, because during the winter the same cattle are only given natural straw forage, and no artificial, milk-forcing substitutes. There is no dairy, and the prices of milk

have not tempted anybody to turn the milking power to the utmost account. Therefore, foraging at the stable during the summer is quite unknown. It can hardly be denied that each of these factors is of importance.

In finally trying to solve the second question which I have set up, my answer must be as follows: Many circumstances favour the belief that animals and man can infect each other with tuberculosis, but in Stjördalen (the examined district) the fact seems to be that cattle are more frequently infected by man than *vice versa*. And I cannot deny that after my investigations the idea has occurred to me that man may have originally infected the cattle, and afterwards the latter made return by sometimes infecting man. It appears to me as if, for instance, the results from Meraker prove that tuberculosis comes originally to a district with the people.

Also in the literature of the question I find many things giving countenance to the same notion. Calmette says in his lecture before the Fifth International Congress on Tuberculosis at the Hague, 1906: "In mammals only those living in captivity or kept as domestic animals are spontaneously infected. . . . Therefore the fact evidently is that man and cattle must be regarded as the seat of the tubercular virus, but the *humanus* and *bovinus* type have no doubt a common origin, and their difference is but relative. Nobody now doubts that the human tubercle bacillus is less virulent to cattle than to man, and *vice versa*. But everybody seems also to be agreed that, on the other hand, the human tubercle bacilli do not spare herbivoras and ruminants." Calmette, therefore, considers tuberculosis in man and tuberculosis in cattle as two different breeds of the mammal variety. That the tuberculosis in cattle cannot be the origin of tuberculosis in man seems to be evident from the communications of Kitasato from Japan and of Röhrdam from Greenland.

Concerning the difference between bacilli of *typus humanus* and *typus bovinus*, the German Commission says, however, that a transition-form between these different varieties could not be obtained, even when, *e.g.*, *typus humanus* was inoculated into cattle, goats, or rabbits. But the British Commission declares that the difference between the bacilli in their first and second group is rather small; and "besides, transitive forms are not rarely met with." In their third group are classed bacilli the virulence of which changed, so that by transmission of the bacilli from one animal to another an increased virulence was observed, whereas the virulence decreased on transferring the bacilli to cultures. This is also in conformity with the report of Professor Hamilton in his lecture in Manchester: "It is undoubtedly proven that bacilli from man can cause tuberculosis in cattle, and also that they increase their virulence in successive passages,

till they at last have almost the same virulence as the cattle bacillus; and with such proofs in view it seems impossible to make other conclusions than this: there is but a difference in degree between the two types."

Finally, Hueppe has found that the difference between the two varieties of the bacilli is so small that when they have passed through guinea-pigs it is impossible to distinguish one from another.

Concerning the question as to the relation between human and cattle tuberculosis there are many contradictory views and many problems not yet solved. But I suppose all are agreed in demanding the accomplishment of these two claims: (1) Our herds in the country ought to be tuberculin-tested more than has been the case before we feed our children with unboiled milk, because of the danger of communicability of the milk. (2) As milkmaids and cowherds in cowhouses and stables, no tuberculous persons must be engaged, in view of the danger of transmission of contagion to the cattle.

MERAKER, NEAR TRONDHJEM, NORWAY.

THE CO-OPERATION OF PUBLIC AND PRIVATE EFFORTS IN THE CAMPAIGN AGAINST CONSUMPTION.

BY C. H. CATTLE,

M.D., F.R.C.P.,

Physician to the Nottingham General Hospital and to the Sherwood Forest Sanatorium for Consumption.

THE problem of the control and final extinction of tuberculosis is too great to be grappled with by voluntary effort alone. Private beneficence and enterprise have been the means of erecting a certain number of sanatoria, providing to some extent for the after-care of discharged patients, and of rousing public opinion and local authorities to the enormous magnitude and importance of the task confronting the community. The larger municipalities are already alive to their responsibilities in the matter, but their good intentions are largely hampered by want of ways and means. I may illustrate the vastness of the problem by a few facts and figures relating to tuberculosis in the neighbourhood in which I live. During the year 1907 over 450 persons died in the city of Nottingham of one or other form of tuberculosis, and above two-thirds of this number died of pulmonary consumption.[1] And if 450 died of the disease, one might estimate

[1] City of Nottingham Annual Health Report for 1907.

the total number suffering from it and in various degrees incapacitated at something like a couple of thousand. In the county of Notts, beyond the city boundary, over 400 persons die annually from tuberculous diseases,[1] and probably 1,800 persons at this moment are ill of tuberculosis in one form or another. In presence of such appalling figures as these some people are disposed to doubt whether all the charity, all the public effort, and rousing of public opinion have so far effected any amelioration of the terrible evil in our midst. It is a complete answer to doubters of this description to recall the fact that the present death-rate from consumption is only half what it was forty years ago. There is every reason to hope that the death-rate will still further diminish and at greater pace during the succeeding forty years. Associations which aim directly at the prevention of tuberculosis have doubtless had some share in bringing about this improvement. At the same time other agencies of a general hygienic description have been at work in reducing the mortality from this disease. These agencies fall for the most part into three classes: (1) Better housing, which gives people more room to breathe, and lessens the evils of overcrowding. Great as has been the improvement in this respect, houses are not yet by any means what they ought to be, or what we may confidently expect they will be in the future. (2) Better wages, enabling the artisan class to obtain better food. Education is still greatly needed—in economy in the preparation of food, in the food-value of different articles, including the low value of alcoholic drinks, and their great potency for harm. (3) Public action by Parliament and local authorities. This has led to the better ventilation of workshops and mines, protection of persons engaged in dangerous trades, better drainage, water-supply, and sanitation generally, and the compulsory demolition of houses unfit for human habitation.

The housing question, indeed, if not at the very root of the tuberculosis problem, at least forms a great part of it. This is strikingly brought out in the last Report of the Medical Officer of Health for Nottingham,[2] for out of all deaths from phthisis 81 per cent. occurred in houses of 6s. a week and under, and 98 per cent. in houses of 8s. per week and under. By far the largest number of deaths occurred in houses of about 5s. and 6s., and a smaller number in those below and above these rentals. At first sight one would have expected the deaths to have been most numerous in houses of 4s. and 3s., these often being built back to back, and in all respects of inferior type. And this is probably true if the number of deaths is

[1] Annual Report of the Medical Officer to the County Council of Nottinghamshire for 1907.

[2] *Op. cit.*, p. 60.

compared with the total number of the worst kind of house. The 5s. or 6s. houses are probably as frequently overcrowded as the 3s. houses, and as the former exceed the latter in number, they provide the larger proportion of phthisis deaths. The speculative builder of to-day is repeating the faults of his predecessor thirty years ago, and the "long, unlovely streets" now being built in the suburbs of large towns will be slums before another generation has passed. Garden cities, like those at Hampstead and Letchworth, have shown us how houses may be built at moderate rental under healthy conditions, and it is hoped that local authorities may before long be possessed of powers which will make it impossible for pleasant fields to be entirely covered by ugly piles of bricks and mortar.

While we look to "town-planning" regulations and other hygienic measures to do much in the future for the prevention of consumption, for the present it behoves us to make the utmost possible use of such agencies as are available. We must support sanatoria for the purpose of arresting the disease in favourable cases. The patients, having learned the value of pure fresh air, on returning home instruct their friends and neighbours in the use of ventilation in preventing consumption and other infectious diseases; further, having learned that the infection resides in the sputum and the proper means of dealing with it, they can help to educate others on the subject. Our Nottinghamshire sanatorium of thirty beds is quite inadequate to the needs of the neighbourhood. It is now supplemented by sanatorium accommodation established by the Corporation of Nottingham on the outskirts of the city. This municipal enterprise is a welcome sign, and is to be seen at work in other cities besides that with which the present writer is chiefly concerned—*e.g.*, Birmingham, which has built an up-to-date sanatorium in the Cotswolds.

Ordinary general hospitals are not of very great service for the treatment of consumption, as the length of stay allowed is not sufficient in most instances to effect any permanent improvement. Besides this, many hospital boards look on the phthisical patient as dangerous to the others, and the tendency is to restrict the admissions as far as possible.[1] In the case of those admitted, the hospital has at times been found a most useful adjunct to the sanatorium by allowing opportunity for observation and the selection of the most suitable cases. Certainly the general hospital is not the proper place for advanced or hopeless cases. Yet it is most important that such cases should be removed from their own homes, where they are a source of danger to the other inmates, and be placed in an institution where they can be properly tended. Probably in course of time we shall

[1] In illustration of this statement, I may mention that the convalescent homes in this locality are now closed to consumptives.

see municipal hospitals established for the more helpless class of consumptives.

The endemic prevalence of tuberculous disease is chiefly due to two factors : (1) The frequent presence of infection in cow's milk, which accounts for a large share of the disease among the young. (2) Want of precaution against infection when cases of consumption are nursed at home. Active measures are already being taken by local authorities to obtain a purer milk-supply, and it is to be hoped that they will soon be crowned by greater success. Pulmonary tuberculosis among adults is mainly spread by means of sputum, hence the danger of keeping cases of the disease at home, unless adequate means of nursing, isolation, and disinfection are obtainable. Imagine a poor home, overcrowded, badly lighted and ventilated, where every inmate has to work for a living, and in addition to this one of the family is bedridden from consumption. No wonder the disease spreads under such conditions. Even in better-class families member after member has been known to sicken and die of phthisis, and so has arisen the prevalent belief of the hereditary character of the disease. Heredity nowadays is believed to play a much less important rôle than infection, and the wholesale decimation of families will become less and less common as preventive measures come into more general operation.

District nursing associations and voluntary agencies are doing something to educate the poorer classes in the measures necessary to prevent the spread of consumption. A regular system of house-to-house visitation is necessary, and although this has been to some extent carried out by voluntary effort, we shall ultimately have to look to the local authority for its establishment on a sufficiently extensive scale. Lady health visitors are already employed by the authorities in many large towns, and as their numbers increase so will the work of inspection be more efficiently performed. The visitors will not accomplish the good that is expected of them unless they have reliable information where cases of consumption are to be found. Hence it is hardly possible to doubt that the disease ere long will be scheduled for compulsory notification. The latter practice—although objected to on the ground of interference with the liberty of the subject—has long been in operation with respect to certain diseases, and there is no logical reason why it should not be applied in the case of tuberculosis, a disease far more destructive to life and health than any of those already notifiable. Dr. R. W. Philip[1] points out the value of special dispensaries for the treatment and investigation of cases of tuberculosis, and also for the purpose of notification, a large proportion of cases being heard of for the first time by applying for relief. He

[1] Philip, R. W.: *British Medical Journal*, October 17, 1908.

also utters a warning against the futility of notification unless it is accompanied by systematic measures of prevention and treatment, the chief of which are home visitation, the sanatorium for early and the hospital for advanced cases. Sir R. Douglas Powell[1] alludes to the difficulties in the way of the removal of consumptives from their homes. But notification does not necessarily mean removal. At the very least it affords the means of investigating and improving the home conditions of the patient, of laying down rules for the improvement of the patient's own health, and for the prevention of the disease spreading to others.

AMERICAN HABITATIONS FOR CONSUMPTIVES.

By SHERMAN G. BONNEY,

M.D.,

Professor of Medicine, Denver and Gross College of Medicine; author of "Pulmonary Tuberculosis."

Clinical experience in recent years has clearly demonstrated the great practical benefits to be derived from the rigid enforcement of strict hygienic and rational dietetic measures in the management of tuberculosis. Exceptional opportunities for the application of these fundamental principles of treatment are now provided in many institutions especially designed for this purpose. Through attention to proper details of construction and modern equipment, and also from the continuous presence of a resident physician with a corps of assistants, superior facilities are afforded for intelligent supervision. While sanatoria for pulmonary invalids have thus become important aids in the maintenance of a systematic régime, it must not be assumed that rational management of consumptives is possible *only* within such special institutions. As a result of earnest, painstaking endeavour on the part of a resourceful medical attendant, precisely the same methods of living may be inaugurated in private abodes. While according full recognition to the usefulness of closed sanatoria, acknowledgment, in all justice, must be made of the excellent results frequently obtained outside institutions.

In the present paper we must waive all discussion as to the manifold advantages and possible limitations of the sanatorium, and restrict ourselves to a consideration of the proposition that residence within such a special institution may be either impossible or in-

[1] Powell, Sir R. D.: *British Journal of Tuberculosis*, vol. i., p. 25.

appropriate for a considerable number of patients. It may be impossible for several reasons, such as expense, stage of the disease, and lack of accommodation. Recourse to institutional management may occasionally be inexpedient, because of temperamental peculiarities, a separation from family not infrequently resulting in nostalgia.

In nearly all cases a moderate adjustment of the environment is demanded in order to meet peculiar individual requirements. It

FIG. I.—TOWN RESIDENCE, WITH SLEEPING-PORCH.

is essential to surround the consumptive patient with such influences as are especially appropriate to changing conditions, thus necessitating a careful regard, not only for all phases of the disease, but also for all factors pertaining to the diseased subject. It is easy to understand that, in exceptional cases, the social atmosphere in sanatoria is not definitely conducive to the contentment and mental well-being of invalids. The substantial value of the psychic element in such cases is often reflected from time to time in a judicious

change of residence and immediate surroundings. Practical considerations are sometimes furnished, not only in the unceasing monotony, pessimistic tendencies and narrowing influences of a prolonged sanatorium existence, but also in the need of a more generous cuisine, and the preparation of food more in accordance with individual tastes.

While constant surveillance is often demanded for the disciplinary control of intractable patients, continuous medical supervision is by no means always required for consumptives with incipient tuberculous

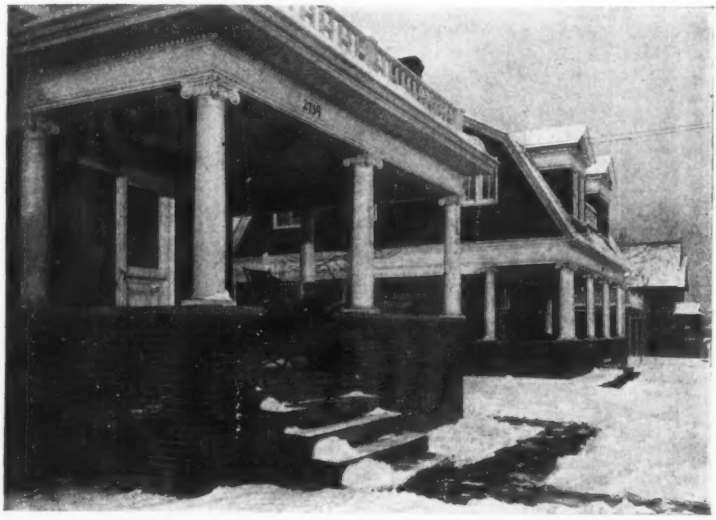


FIG. 2.—SMALL CITY HOUSE, WITH PORCH FOR LYING OUT.

disease. Thus it not infrequently becomes incumbent upon physicians in health-resorts to provide residential quarters for pulmonary invalids outside sanatoria. To secure suitable surroundings and hygienic conditions for individual patients imposes a very serious tax upon the resources of the medical attendant, while the enforcement of a satisfactory régime is often difficult of accomplishment. By dint, however, of great perseverance and a genuine devotion to the work, one may be enabled to establish thoroughly efficient, small temporary households for consumptives, and inaugurate and maintain therein a fairly complete interpretation of sanatorium control. The spirit of home-life is fostered, while certain unfortunate influences prevalent in the ordinary home, which are frequently responsible for laxity of discipline, are avoided.

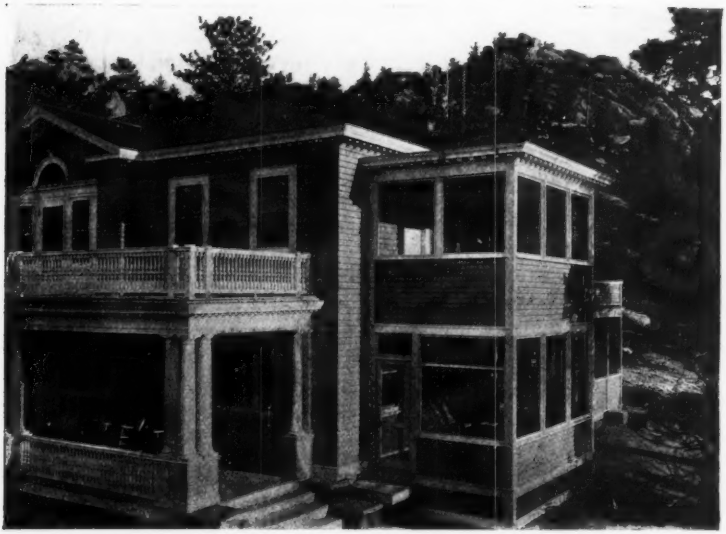


FIG. 3.—RESIDENCE, WITH TWO SLEEPING-PORCHES, HAVING SOUTH-EAST ASPECT. PROTECTION BY ROCKS ON THE NORTH.

FIG. 4.—SUMMER RESIDENCE FOR CONSUMPTIVE PATIENTS.

The management of cases of pulmonary tuberculosis in their own dwellings is sometimes exceedingly difficult by reason of the negligence and perversions of judgment of members of the family,

injudicious petting, social interruptions, and various indulgences. These objections may be satisfactorily removed in favourable climates by improvising with great care a small cottage sanatorium, which offers facilities for the elaboration of well-recognized principles of management. It has been my custom for many years to group patients as wisely as possible, with reference to such vitally important considerations as congeniality, disposition, tastes, stage of the disease and financial status. Buildings have been selected to meet all

FIG. 5.—SUMMER RESIDENCE, WITH PORCH COMMUNICATING WITH PATIENT'S SLEEPING-ROOM.

possible requirements as regards location, porch accommodation, private balconies, heating facilities and other important hygienic conditions. An efficient nurse remains in constant attendance upon the temporary household, and, with the directing influence of the physician, preserves, as a rule, an atmosphere of repose and contentment among the occupants of these private habitations. By the aid of competent servants opportunity is afforded for the preparation of tempting viands, and the comfort and happiness of invalids materially promoted. Ennui and depressing influences are minimized to a considerable degree, and the advantages of such an arrangement over the sanatorium become at times conspicuous.

FIG. 6.—MOUNTAIN RESIDENCE FOR SIX OR EIGHT PATIENTS.

FIG. 7.—SIMPLE SIX-ROOM COTTAGE, WITH EXTENSIVE VERANDA.

It is, of course, essential that accommodation be afforded for patients in all the varying walks of life and in accordance with financial ability and stage of the disease. It has also been found desirable to provide for change of surroundings and environment at different seasons of the year. Abodes of this character to suit the many requirements of pulmonary invalids have been selected, according to the season, either in appropriate sections of Denver or in the mountains of Colorado, in regions not too remotely accessible. Suitable dwellings in the mountains have been arranged in colonies in order to permit of frequent visitation.

Densely populated districts are to be avoided at all times of the year. Patients residing in Denver during the winter months are advan-

FIG. 8.—FIVE-ROOMED COTTAGE, WITH SLEEPING-PORCH, IN MOUNTAIN DISTRICT.

tageously removed from the thickly inhabited portions of the city. I have found it oftentimes advisable to provide a location during the summer in a moderately elevated region. It is always important to secure shelter from boisterous winds and to obtain ample protection from solar heat. A dry, sandy soil or rocky formation is decidedly advantageous, insuring a minimum of dampness with superior drainage. Appropriate sites have been obtained upon the southern slope of a hill district or on moderately high mountain-land rising to a considerable height in the background. Modest, inexpensive buildings have been so designed as to permit of a practically continuous outdoor existence during the twenty-four hours of the day.

Private sleeping balconies communicate directly with an inside chamber insuring protection to the invalid during extremes of weather. All porches are covered by a permanent roof enclosed by wire screening and equipped with adjustable awnings. It is often desirable in city residences that the sleeping porch should be sheathed from the bottom a distance of three feet, and provided with proper lighting facilities.

While the closed sanatorium undoubtedly represents an admirable means of securing strict hygienic management of consumptives, special provision for a class of patients outside sanatoria is not infrequently demanded, and some of the ways in which this may be attained are indicated in the accompanying illustrations of private dwellings inhabited by tuberculous subjects in the United States of America.[1]

[1] We are indebted to the courtesy of Messrs. W. B. Saunders Company, of London and Philadelphia, for the loan of the blocks of the illustrations, all of which are taken from Professor Bonney's new and informing work on "Pulmonary Tuberculosis," a review of which appeared in our last number.—EDITOR, *B. J. T.*

VIEWS AND REVIEWS.

THE PREVENTION AND ARREST OF TUBERCULOSIS: NEXT STEPS.

In the great combat against the most devastating of world-wide diseases, tuberculosis, there are many leaders and numerous war-cries. Much ingenuity of thought and enterprise in action are being displayed in the formulation of plans of campaign and the forging of weapons for defence and attack. The recent International Congress on Tuberculosis in Washington has focussed the attention of all civilized races upon this people's problem. The popularization of the anti-tuberculosis movement has begun in the United States of America, Scandinavia, Ireland, and Canada, and must inevitably spread. The recent action of the Local Government Board in this country, in arranging for the obligatory notification of consumptives under the Poor Law, marks an important advance. The passing of the Tuberculosis Prevention Bill for Ireland is a remarkable sign of the times. The last interim report of the British Tuberculosis Commission has turned attention again to the relation of the milk question to tuberculosis. With the coming of the new Children Bill, and with the rapidly increasing consideration now given to all matters relating to the protection of infancy and childhood, many believe that anti-tuberculosis measures of the greatest value will be secured. Even in many of the recommendations of the Commission on the Poor Law there is much of hope for the consumptive and those of tuberculous tendencies. The social world is in a ferment. Much is wrong, and noble efforts are being made to right the wrong. But amidst the multitude of counsellors there is some reason to believe that knowledge may be confused, and that true wisdom will still linger. This is especially to be feared in regard to the anti-tuberculosis movement. Here co-operation, co-ordination, concentration, are essential. The campaign on which we have entered must be a long, arduous, and testing one, and the plan for its conduct must be scientific, humane, and practical. At this important juncture, when many are asking for guidance regarding lines of advance, and direction regarding the concentration of forces we have thought it wise to present certain authoritative opinions which we are sure will receive the careful consideration of our readers.

FROM SIR JOHN W. BYERS,
M.A., M.D.,
Professor of Midwifery and Diseases of Women and Children, Queen's College, Belfast.

The next steps in the anti-tuberculosis campaign, as far, at least, as Ireland is concerned, will, I hope, be in the following directions:

1. The Tuberculosis Prevention Bill, which will come into force on July 1, is practically permissive—that is, it can only be adopted by the decision of the District and County Councils; in other words, being a permissive measure, it will become useful only so far as local public opinion enables it to be so. Now, in order to educate this public opinion properly, Her Excellency the Countess of Aberdeen, President of the Women's National Health Association of Ireland, is sending copies of the Bill, as well as a memorandum published by a legal authority giving an explanation of it, to the committees of the hundred branches of the association all over Ireland, in order that these committees may study the Bill, and have a special meeting to talk it over. In this way it is hoped pressure will be brought upon the local authorities to adopt a measure by which all cases of tuberculosis "as are liable to communicate the disease to other persons by reason of infective discharge" will be notified, and in which there are clauses which will enable County Councils to provide and maintain hospitals, sanatoria, dispensaries, nurses, and lecturers, etc.

2. We must attack the problem of the prevention of tuberculosis both in infancy and childhood as well as in adult life. In our towns the establishment of "babies' clubs," or schools for mothers (especially as in Belfast, where pure and guaranteed non-tuberculous milk is supplied, in the case of the very poor who cannot nurse their babies, in sealed bottles at the infants' homes), will give the children a sound start in life; and we must direct more and more attention to the hygiene of our public schools. Commencing between five and ten years, the Irish tubercular death-rate, as compared with the English, is very high, the figures per 100,000 for the period 1901-1905 being 67 in the case of England and 118 in Ireland, Scotland being about the same as Ireland. Between ten and fifteen years—a period which embraces a considerable portion of the school age—going on to adolescence and manhood, it becomes abnormally high; and comparing our position in 1871-1880 with 1901-1905 the tendency in Ireland is to disimprove, whereas the opposite is the case in England and Scotland. Further, it is a most remarkable fact that there is an *increase* of female mortality in Ireland from tuberculosis at the age-period ten to fifteen (between 1871-1880 and 1901-1905), amounting to 29·8 per cent., as compared with 2 per cent. in males, and

it surely demands some explanation. It would seem that girls have availed themselves of the educational facilities more than boys. The first great increase in the tuberculosis death-rate in Ireland is, indeed, coincident with the school-age, an increase which grows steadily through the whole period of school attendance. Hence we must try to have better school hygiene, medical inspection of schools, shorter hours for the younger children, and, if possible, an arrangement for a warm midday meal.

3. We must press for a more thorough State control of the milk-supply.

4. Finally, as consumption is so largely a house disease, we must educate the people more and more as to the value of good structure, site, and sanitation in their dwellings.

From HERMANN M. BIGGS,

M.D.,

Chief Medical Officer of Health for New York City.

What is the next point on which energy should be focussed to secure the arrest of tuberculosis? The answer to this question will, it seems to me, differ somewhat in different countries and in different localities of the same country, depending upon the state of development of the anti-tuberculosis crusade. This has not progressed everywhere along the same lines nor to the same extent. Witness in Germany the highly developed anti-tuberculosis movement side by side with the lack of any regulations for compulsory notification. In fact, in many States and countries the initial educational steps in the fight against tuberculosis have only recently been taken.

In New York City, the point upon which I feel that energy should be focussed is in the increase of accommodation for the care of tuberculous patients, particularly for those suffering with the disease in moderate or advanced stages.

New York City has now available more than three thousand (3,000) beds for tuberculous patients in all stages of the disease, and buildings are either being erected or have been planned for the accommodation of sixteen or eighteen hundred more.

We feel that in New York no other measures at the present time can compare in their value with this one—namely, the removal of the centres of infection in the overcrowded tenement-house districts of the city by the removal of tuberculous persons who are active sources of danger.

FROM SHERIDAN DELÉPINE,

M.B., C.M., M.SC.,

Professor of Comparative Pathology and Bacteriology; and Director of the Public Health Laboratories of the Victoria University of Manchester.

The Editor having asked for a concise statement of my opinion regarding the *prevention from tuberculous infection through milk*, I cannot sum up my views now differently from what I have done on several occasions since 1897 on the basis of observations and experiments made during the previous six years. My recommendations may be summarized as follows: (1) Division of the whole country into a number of well-defined administrative areas, each provided with an efficient staff of inspectors. (2) Marking and registration of all cattle for purposes of inspection and notification. Systematic periodical inspections of herds and cowsheds within each administrative area. Testing of all cattle with tuberculin. (3) Isolation of all-tuberculous cattle. Disinfection of sheds which have been occupied by tuberculous cattle. Exclusion of insanitary stables. (The fæces and other discharges from tuberculous cows are infectious; pastures and sheds are thereby rendered infectious.) (4) Immediate slaughter of all cattle in an advanced state of tuberculosis (including all cases of udder tuberculosis). (5) Fattening of all animals not in an advanced state of tuberculosis for the meat market. All cattle should be slaughtered in *public abattoirs*, so as to insure *thorough meat inspection*. (6) Compensation during one year or two for losses incurred by owners of cattle, except in cases regarding which there had been gross or culpable neglect. After this *transitional period of compensation* the presence of a case of advanced tuberculosis in a cowshed to render the owner liable to a penalty. (7) Testing of all cattle brought into the area, so as to prevent the introduction of fresh sources of tuberculosis. No cattle above six years of age to be imported. (8) All the milk from tuberculous cattle to be boiled before being used for feeding animals. (9) Control of all imported foreign dairy produce, so as to enforce the same standard of purity as in the case of home produce. (10) To avoid a sudden national depression in the dairy industry, which would be favourable to foreign produce, I further suggest that *the enforcement of these measures should not be simultaneously carried out all through the country*, but that they should be at first enforced in a certain number of administrative areas, to which year after year other districts should be added, until the whole country was under administrative control. It is probable that the work could be accomplished in some ten years. Until sanitary authorities are satisfied that bovine tuberculosis has been practically

stamped out, the milk of cows not certified by competent inspectors to be free from tuberculosis should be boiled before consumption.

I have given my reasons for all these statements in various papers which I have published since 1892, and more specially in the following: "The Examination of Cow's Milk for the Detection of Pathogenic Properties," *Journal of Comparative Pathology*, 1897; "Tuberculosis and the Milk-Supply," *Lancet*, September 17, 1898; "The Stamping-out of Bovine Tuberculosis," Transactions of the British Congress on Tuberculosis, London, 1901.

FROM PROFESSOR A. KUTTNER,
M.D.,
Editor of *Zeitschrift für Tuberkulose*.

The campaign against "Tuberkulosis als Volkskrankheit" has up till now in all civilized countries consisted chiefly in plans and arrangements which have led to the establishment of special hospitals, sanatoria, schools, and resorts in wood and country air, anti-tuberculosis dispensaries, polyclinics, etc., where the tuberculous patients are nursed, fed, and generally cared for.

The next immediate step ought to be chiefly the enlargement in detail of these institutions, and in doing so each country should profit by the experience she has up till now had, and decide which of these institutions suit her best.

But every penny that can be spared should first and foremost be used for the improvement of the homes of the working classes, as they are generally in so non-hygienic and pitiable a condition that one cannot but trace the root of the great white plague to this home source.

INSTITUTIONS FOR THE TUBERCULOUS.

CROOKSBURY SANATORIUM.

THIS establishment was opened in May, 1900, in the beautiful district of pinewoods and heather between Guildford, Godalming, Farnham, and Hindhead, sometimes called "the English Engadine." It has many advantages from climate and position. The soil is extremely porous, so that the ground rapidly dries after heavy rain, and yet is not dusty. The surrounding hills and woods shelter the sanatorium on all sides from strong wind, excepting to the south, where the ground slopes away gently towards the valley of the River Wey. The

THE NORTH ANNEXE.

position and height of the sanatorium above the sea-level (over 400 feet) ensure a pleasant breeze, even in hot summer weather, and an abundance of sunshine, of which it receives about as much as Hastings. The whole of the sanatorium was specially built for the purpose. Cross ventilation and surgical cleanliness are enforced in all the buildings, which consist of two solid ones in brick and rough-cast, and a number of châlets, shelters, and accessory structures. Lighting is by electricity, the heating mostly by hot-water pipes, excepting in some of the châlets and shelters, which are provided with open fire-places. Some of the chief structural features are indicated in the

accompanying figures. There are an abundance of walks at various gradients, both in the grounds and outside. There is a well-stocked surgery and laboratory, in which opsonic tests have been carried out for three years. There are lawns for bowls, croquet, and putting respectively. The Farnham golf links are just outside the grounds. Patients who are fit for it are permitted to play golf; others are

SOUTH FRONT OF MAIN BUILDING.

encouraged to fell trees or work in the garden, and can study the French or intensive system of raising vegetables under the head-gardener. Other arrangements have also been made for instruction in such matters.

F. R. WALTERS, M.D.,
Resident Physician.

THE RHODE ISLAND STATE SANATORIUM.

THE Rhode Island State Sanatorium was opened on November 1, 1905. It is located at Wallum Lake, 28 miles from Providence. The Sanatorium tract comprises 250 acres, partly bordering on the lake, from which the water-supply is obtained. The buildings are about 600 feet above sea-level and about a quarter of a mile from the railway-station. The institution is built on the ward plan, and has 120 beds. There are eight rooms for acutely sick cases, but no rooms or especial accommodation for private patients. Two-story covered porches on the west side of the wards allow all patients to sleep out of doors throughout the year. In addition to the usual hygienic dietetic treatment, tuberculin is given as a therapeutic measure. When patients are so improved that they can exercise with benefit, they are required to do a prescribed amount of work about the sanatorium. The amount of work is gradually increased up to one half-day whenever possible. The regular charge is $5.00 per week,

THE RHODE ISLAND STATE SANATORIUM.

but in 1908 over 70 per cent. of the treatment was entirely free. A course of reading on the subject of tuberculosis is prescribed for all patients on admission, and for those whose knowledge is found insufficient on subsequent examination another course of reading and re-examination is required. A publication, entitled the *Wallum Lake Bulletin*, is issued monthly from the sanatorium. The mailing list averages 2,000 copies, and includes all the physicians of the State. Of 401 patients discharged in 1906 and 1907, 371 have been traced, and of this number 141, or 37 per cent., are free from active symptoms of disease, and are steadily at work.

HARRY LEE BARNES, M.D.,
Resident Physician and Superintendent.

HEALTH STATIONS.

BERCK-SUR-MER.[1]

BERCK-PLAGE, where patients suffering from surgical tuberculosis resort from all parts of the world, is a town of 10,000 inhabitants, situated on the English Channel and in the Department of the Pas-de-Calais. A railway, four miles long, connects it with the station of Rang-du-Fliers, on the line from Paris to Calais. Berck is reached in three hours by express train from Paris, and by a journey of eight hours from London.

The town is composed of two main parts: the fishing village, situated one mile inland; and the bathing resort, on the coast. The latter did not exist fifty years ago, but has gradually grown up around the hospital which the city of Paris built in 1856. To this seaside resort visitors come from all parts, attracted by the fame of the Children's Institution. The cures obtained at Berck have established its reputation throughout the world.

Berck-plage consists of the hospitals belonging to the City of Paris, special private hospitals, and numerous villas. The institutions belonging to the City of Paris are the Hôpital Maritime and the Bouville and Parmentier Hospitals.

The Maritime Hospital has been from time to time enlarged, the latest additions having been made as recently as 1908. It is a brick building, consisting of four parts: (1) an Observation Block, with 120 beds, where the new arrivals are placed for the first month of their stay, in glass cubicles; (2) an Isolation Hospital of 80 beds, with separate cubicles; (3) a Building with 300 beds, facing the sea, with covered galleries for bedridden patients; (4) blocks with 600 beds for those children who are able to walk about. The Senior Surgeon is Dr. Menard; the Assistant Surgeons, Drs. Andrieu and Calve. This institution is entirely reserved for poor children of the city of Paris.

Children from the Department of the Seine are sent to the Bouville and Parmentier Hospitals, the former having 300 beds for boys, and the latter 300 beds for girls. The Surgeon to these hospitals is Dr. Menard.

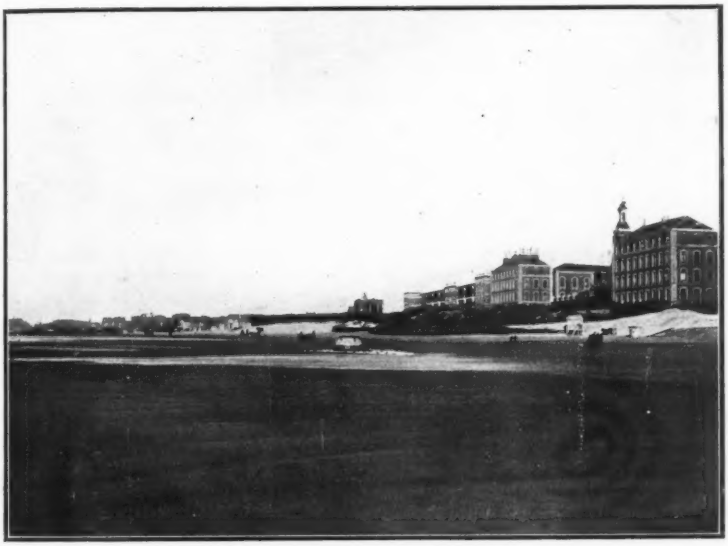
Adjoining these hospitals are a number of private institutions equipped with operating theatres, dressing-rooms, and plaster-rooms, and which can be selected as the patient's means or requirements dictate.

The popularity of Berck depends upon (1) its climate, and (2) the special advantages it offers to patients.

The climate is a typically maritime one. The temperature is mild

[1] We are indebted to the kindness of Dr. H. J. Gauvain, Medical Superintendent of Lord Mayor Treloar Cripples' Home and College, Alton, Hampshire, for the English translation of Dr. Andrieu's article.—ED. *B. J. T.*

in summer, not exceeding 28° C. In winter frost is very rare and snow is exceptional—it is seen about once in three years. The rainfall is not particularly heavy, and it causes no inconvenience, owing to the fact that the town is built on sand-dunes, and when it does fall the rain is quickly absorbed and the ground rapidly dries. Sunny days are the rule, cloudy days infrequent, and the abundant sunshine equals that of mountain stations, and is sufficient for heliotherapy. The barometric pressure is steady, and the variations trifling, all these being characteristics of a maritime climate. An analysis of the air has not been made, but the presence of ozone and sodium salts is demonstrated by the ease with which iron objects become oxidized,



BERCK-SUR-MER.

View of the front of the Hospital Maritime, taken at low water; the houses of Berck-Plage are seen in the distance.

even in the absence of moisture. This fact is due to the direction and the intensity of the winds which blow over Berck, and the considerable area of sand exposed for evaporation, uncovered by the falling tide for a long distance. The salt-impregnated air is wafted towards the land. The prevailing winds are westerly and south-westerly, and are six times more frequent than those from any other quarter.

Another reason which makes Berck a much-frequented place for so many invalids is that everything is designed for their convenience. And not only are their comforts studied, but their feelings are respected. Here the invalids are not the exception—they are not an object

of curiosity—and when met with are not avoided with an air of pity and disgust. Lying in their little carriages, they traverse the streets in long files without anyone showing the least surprise. Moreover, from their constant contact with invalids suffering from the same disease as themselves, the new arrivals soon grasp the nature and understand the long duration of their illness, and, instead of losing courage, they hopefully accept the length of the proposed treatment, the results of which they see around them.

The patients who progress most favourably at Berck are rickety children and the subjects of surgical tuberculosis. To these may be added anæmic people and convalescents. Unsuitable cases are those suffering from early phthisis, and also nervous patients, for the Berck climate is generally considered too stimulating for these, although this disadvantage may be overcome by careful acclimatization.

Young rickety children are rapidly cured of their deformities by rest, sea-baths, and exposure in the open air.

Patients suffering from tuberculous disease of the lymphatic glands may be grouped into many classes. Those with multiple lymphatic infection, without peri-lymphatic inflammation, and with small glands which are not softened, heal of their own accord under the influence of the climate alone. More advanced cases, with dense masses of adherent glands in which there is a tendency to softening, are treated by injections into the mass which result in liquefaction of the lymphatic glands, the contents of which are then evacuated by aspiration. Those who do not react to this treatment require surgical interference, which is given by incisions made with as little disfigurement as possible. Frequently patients with tuberculous glands come with sinuses already formed. These are treated by ordinary surgical methods.

The treatment of patients suffering from tuberculous disease of the bones and joints is decided by their long duration and by the necessity for complete immobilization of the injured part. If the disease is localized in the spinal column or in the lower limbs, the invalid is subjected to strict immobilization. It is not always easy to reconcile the advantages of immobilization with those of exercise, but a substitute for the latter is arrived at by exposing the patient to the sea-breezes, which promote the cure and excite the appetite.

To give the hospital children the full benefit of this treatment, those who need it are placed on couches in the open-air galleries facing the sea. They are only put back in the wards at night or when the weather is bad. For patients who do not live on the front, portable wooden couches are made, covered with a thin mattress, on which the patient is strapped. These are carried to the beach on spinal carriages drawn by donkeys.

Abscesses are never opened, and everything possible is done to prevent them bursting spontaneously. They are aspirated with antiseptic precautions, and injected with modifying fluids, such as camphorated thymol, iodoform ether, or simply sterilized ether. It is exceptional, when care is thus taken from the beginning, for sinuses to be produced. If they break down in spite of these precautions, it is usual to evacuate the abscesses at the spot where they point, and to apply antiseptic dressings, under which the sinuses usually heal without complications. Sometimes the sinus is invaded by pyogenic

organisms. If fever sets in, and the general condition becomes threatening, free drainage becomes compulsory, but this is exceptional.

At the Maritime Hospital comparatively few operations are performed, but the number of surgical cases would be less if we did not receive from Paris a great number of patients already infected and in a febrile condition compelling us to interfere. An annual report on the Maritime Hospital has not yet been published. About 2,000 cases come under treatment each year, and remain, on an average, about six months. Of these, we have seen thirty deaths due to tuberculous meningitis.

In conclusion, it may be said that Berck is full of resources for invalids. There are fourteen resident doctors in the place, of whom the greater number bear the highly-valued distinction of former House Surgeon to the Parisian hospitals. Patients coming with their families usually prefer to take a villa, the rent of which will vary according to its position, equipment, and size. Those who come by themselves go to the hotels or sanatoria, where their families can reside with them altogether or for a time. The hotels are numerous, the sanatoria more so, and, indeed, everyone can find a residence suited to his inclination and means.

J. ANDRIEU, M.D.,
Assistant Surgeon to the Maritime Hospital.

NOTICES OF BOOKS.

THE INTERNATIONAL TUBERCULOSIS CONFERENCE.

WITH most commendable promptitude Professor Dr. Pannwitz, the indefatigable Secretary-General of the International Anti-Tuberculosis Association, has issued the Transactions of the recent Seventh Meeting of the International Tuberculosis Conference at Philadelphia.[1]

The International Tuberculosis Conference meets annually. It was established in 1902, and has its headquarters in Berlin. Twenty-two national associations or leagues are represented: Argentina, Austria, Belgium, Brazil, Denmark, France, Germany, Great Britain, Greece, Hungary, Italy, Netherlands, Norway, Portugal, Roumania, Russia, Servia, Spain, Sweden, Switzerland, United States of America, and Uruguay. There are at present sixty-eight ordinary members, fifty-eight honorary members, and 632 corresponding members. Conferences have been held in Berlin, 1902; Paris, 1903; Copenhagen, 1904; Paris, 1905; The Hague, 1906; Vienna, 1907; and Philadelphia, 1908. This year the gathering takes place in Stockholm, that for 1910 will be in Brussels, while that for 1911 will naturally be in Rome, where the next International Congress meets. These annual conferences do much towards securing international co-operation and co-ordination in anti-tuberculosis methods and measures. The present volume bears striking evidence of the value of the work done. Here are records of important discussions on such subjects as provision for advanced cases of tuberculosis, prophylactic measures against infection, hygienic requirements for the construction and equipment of sanatoria, tuberculosis and legal rights, tuberculosis and traffic, anti-tuberculosis education, and the rôle of the Red Cross Society in the crusade against tuberculosis.

Some of the most distinguished students of the tuberculosis problem have taken part in the proceedings. A particularly interesting and valuable feature of these conferences is the presentation in the concluding meeting of reports concerning the progress of the tuberculosis campaign in different countries. We trust we have said sufficient to indicate that this volume is not to be received merely as an official and formal record, but should be read and studied as an expression of the most authoritative views and teaching of some of the most experienced pioneers in the anti-tuberculosis movement. The book is excellently printed, parts being in German, French, and English; the arrangement is orderly and convenient, and there are most satisfactory indices. T. N. KELYNACK, M.D.

[1] "Report of the Seventh International Tuberculosis Conference," Philadelphia, September 24 to 26, 1908. Edited by Professor Dr. Pannwitz. Pp. xxviii + 340. Berlin-Charlottenburg: Internationale Vereinigung gegen die Tuberkulose. 1909. Price 3M.

OPEN-AIR SCHOOLS.

Dr. Kraft, of Zurich, has written a really informing and helpful monograph on open-air schools.[1] He shows that the school is one of the most important instruments of civilization. It is now undoubtedly in a state of transition. Schools have hitherto neglected outdoor instruction, activities, and systematic health training. All these factors must be included in the schools of the future. After the careful differentiation of school-children has been effected, with a view to more individual teaching and instruction in the care of health, the causes which lead to the creation of various types of children must be thoroughly investigated. A brief description of the schools at Charlottenburg, Mülhausen, and Gladbach is given, and stress is laid upon the three main factors of open-air schools—the physical, educational, and moral advantages. The London open-air schools are also mentioned, and reference made to the investigations made in Germany by Dr. James Kerr and the writer. Finally, the author attributes the popularity of open-air schools, not to the desire for novelty, but to the recognition of the necessity for sweeping reforms in our present school system. FREDERICK ROSE, PH.D.

VACCINE THERAPY.

In the second edition of Dr. Allen's book much new matter has been incorporated, so that it comprises a very complete exposition of the subject.[2] The author discusses more fully in this edition the nature of opsonins, and concludes that opsonic action is due to a thermostable amboceptor-like body and a thermolabile complement-like body acting together, the former being the more specific and predominant in immune serum, the latter in normal serum. The book now contains a section on the etiology of tuberculosis, and on the various methods of diagnosis by tuberculin and by the opsonic index. The relation of bovine to human tuberculosis is discussed, with Spengler's results and theories, and the findings of the British and German Tuberculosis Commissions. The different methods of vaccine therapy in various diseases are reviewed, including a brief reference to Latham's new method, which is not quite given the prominence which it deserves. The author expresses his preference for the use of mixed bovine and human T.R., with the addition of small doses of Denys' tuberculin when toxæmia is present. Some interesting charts are given, showing the effect of mixed T.R. upon the respective opsonic indices. The book may be recommended as an accurate account of an important method of diagnosis and treatment. F. R. WALTERS, M.D.

[1] "Waldschulen." By Dr. A. Kraft, Schularzt in Zurich. Pp. 27. With four plates. Zurich: Verlag Art. Institut, Orell Füssli. 1908.

[2] "Vaccine Therapy and the Opsonic Method of Treatment." By R. W. Allen, M.D., Pathologist to the Mount Vernon Hospital for Consumption. Pp. 244. London: H. K. Lewis. 1908. Price 7s. 6d. net.

ADMINISTRATIVE MEASURES AGAINST TUBERCULOSIS.

Dr. Arthur Newsholme has just issued an important Memorandum supplementing the information contained in the circular letter issued by the Local Government Board, which was sent with the Public Health (Tuberculosis) 1908 Regulations to all Sanitary Authorities and Boards of Guardians.[1] It seeks to instruct and advise parochial and other medical officers, and presumably all administrators, regarding the practical working of the recent Order. The aim and scope of compulsory notification of consumptives under the care of the Poor Law is explained, and the characteristics of tuberculosis are briefly indicated, while the necessity for educational measures in preventing and arresting tuberculosis is clearly insisted on. The importance of early diagnosis is wisely dealt with, and the medical practitioner's position in relation to preventive measures is judiciously defined. The importance of administrative control is explained, and measures and methods of procedure in official investigations are detailed. A section is devoted to steps which should be taken to provide against infection. Excellent advice is given regarding home training and supervision. The rôle of the Tuberculosis Dispensary, and the place of the Sanatorium in anti-tuberculosis procedure are dealt with, and the need for adequate institutional treatment of advanced consumptives is forcibly presented. The Memorandum is judicious, opportune, and will be of far-reaching service. All engaged in the conduct of anti-tuberculosis work should read it.

AURAL AFFECTIONS.

Mr. Macleod Yearsley is to be congratulated on having furnished the general practitioner and student of aural pathology with a model handbook, and, if we mistake not, he will also have earned the thanks of aural surgeons for the thorough, concise, and up-to-date presentation of a comparatively new and rapidly advancing speciality.[2] The work in style, substance, illustration, and printing is admirable. It is a complete, clearly expressed exposition of anatomical, physiological, pathological, clinical, and therapeutical knowledge relating to ear affections. We are, however, particularly interested in the section devoted to a consideration of aural tuberculosis. This is of special value for the references given. The interesting association of tuberculous adenoids with secondary tuberculous middle ear is referred to and discussed. Mr. Yearsley says: "As a complication of pulmonary tuberculosis, tuberculous middle-ear disease may occur at any stage, but it is especially prone to appear during the last few days of the patient's life." This is a subject which we fear is too much neglected in sanatoria and hospitals for consumptives. The pathology and symptomatology of aural tuberculosis are especially well presented, and the directions for treatment and suggestions for prognosis are

[1] "Memorandum by the Medical Officer of the Local Government Board on Administrative Measures against Tuberculosis," pp. 13. London: Wyman and Sons, Ltd., Fetter Lane, E.C. 1909. Price 2d.

[2] "A Textbook of Diseases of the Ear." By Macleod Yearsley, F.R.C.S., Senior Surgeon to the Royal Ear Hospital. Pp. 452. With 128 illustrations London: Kegan Paul, Trench, Trübner and Co., Ltd. 1908. Price 18s. net.

sound. If only for the sake of this section, this work should be in the hands of all physicians called to deal with consumptives and other tuberculous subjects.

DISEASES OF THE SKIN.

Among the many manuals dealing with cutaneous affections, Dr. Norman Walker's, since its first issue, has been a favourite with practitioners and students, and now, in its fourth edition, may be considered as beyond reviewers' praise or blame.[1] The chief feature of the new volume is its numerous and admirably executed coloured and photographic illustrations, all of which are of the best. The text has been kept well up-to-date, and is sufficiently dogmatic and practical to meet the requirements of those for whom the work is intended. Forty pages are devoted to tuberculous affections of the skin, and special reference is made to treatment, including photo- and radio-therapy and the use of tuberculin. A good illustration is given of Bazin's disease, or erythema induratum scrofulosorum. The work is one which should have a place on every practitioner's bookshelf.

THE MANAGEMENT OF INFANCY, CHILDHOOD, AND YOUTH.

Dr. John Thomson's manual on sick children, on its first appearance in 1898, immediately leaped into popularity, and has, the world over, maintained a unique place among the literature of pediatrics. Although the new edition[2] just issued is greatly enlarged, we are glad to find the old characteristics are still present, and in its larger and extended form the work will win even greater favour and find new fields for wider influence and service. We know of no other work dealing with childhood more thorough, reliable, and serviceable, and suited to the needs of young practitioners. It is an eminently helpful manual, and no physician called to minister to the needs of children should be without it. Much new matter has been added and the work brought up-to-date, but where all is of the best it is invidious to individualize. The sections dealing with tuberculosis are so excellent that we could have wished them extended. A particularly valuable feature of the work is the well-selected and clearly reproduced series of photographs. Many useful references are given, and the perplexed practitioner will be grateful for the practical and suggestive information contained in the appendices, and especially for the formulæ and recipes.

Dr. A. Dingwall-Fordyce is to be congratulated on having written a most scientific, unprejudiced, and understandable manual on infant

[1] "An Introduction to Dermatology." By Norman Walker, M.D., F.R.C.P.E., Physician for Diseases of the Skin to the Royal Infirmary, Edinburgh. Fourth edition. Pp. 332. With 28 coloured plates and 69 illustrations. Edinburgh and London: William Green and Sons. 1908. Price 9s. 6d. net.

[2] "Guide to the Clinical Examination and Treatment of Sick Children." By John Thomson, M.D., F.R.C.P.E., Physician to the Royal Edinburgh Hospital for Sick Children. Second Edition. Pp. 629, with 160 illustrations. Edinburgh and London: William Green and Sons. 1908. Price 12s. 6d. net.

feeding.[1] It has been prepared for "the consideration of general practitioners in medicine and of medical students, upon whose shoulders lies much of the responsibility for the present and the future welfare of the children of this country, the medical guidance of their parents, and the diffusion of rational information concerning preventive and curative pediatric medicine among the laity generally." In arrangement, presentation, and substance the work is excellent. It deals fully with the dietetic management of the healthy and sick child, by both maternal and artificial feeding. The details concerning substitutes for mother's milk and the treatment of special digestive disorders will prove particularly valuable to the young practitioner. The work may well be studied by physician and parent and nurse, and, indeed, by all who are responsible for the care of infants.

We wish also to draw attention to a remarkable collective study on the problem of Infantile Mortality prepared by Dr. S. G. H. Moore.[2] It is particularly valuable in that it affords an accurate analysis of the causes of the high death-rate among infants, and gives much information regarding French crêches and German *Krippen*, and indicates the nature of the special measures now being employed in France and Germany to protect infants and children.

Professor Le Grand Kerr has issued a simple and serviceable guide for mothers and those responsible for the care of infant life.[3] It is popular in style and presentation, but scientific in its spirit and aim, and thoroughly practical. The text deals in chronological order with all matters relating to the development of a baby which a rationally-minded woman should thoroughly understand. This is not a substitute for the medical adviser, but a commonsense manual, which should help mothers to co-operate wisely and well with their doctor in the care of their offspring.

In all civilized countries increasing attention is being devoted to all matters relating to the protection of child life, and at present particularly to the care and control of school-going children. The Transactions of the Second International Congress on School Hygiene[4] are a veritable mine of information on all matters relating to the child and the school. Among such a wealth of material it is difficult to individualize, but we are glad to see that the most important question of the school in its relation to tuberculosis was dealt with by Dr. A. Newsholme and other experts whose opinions and investigations merit thorough consideration. These epoch-making volumes should be in the library of every public school, and should be

[1] "Diet in Infancy: The Essential Introduction to the Study of Disease in Childhood." By A. Dingwall-Fordyce, M.D., F.R.C.P.E., Extra Physician to the Royal Hospital for Sick Children, Edinburgh. Pp. 174. Edinburgh and London: William Green and Sons. 1908. Price 3s. 6d. net.

[2] "Report on Infantile Mortality." By S. G. H. Moore, M.D., D.P.H., Medical Officer of Health and Chief Medical Officer to the Education Authority, Huddersfield. Fourth Edition. Pp. 144, with appendices. Huddersfield: *Daily Chronicle* Printing Works. N.d. Price 2s. 6d.

[3] "The Baby: its Care and Development." By Le Grand Kerr, M.D. Pp. 150, with 21 figs. New York: Albert T. Huntington. 1908. Price $1.00.

[4] "Transactions of the Second International Congress on School Hygiene. London." 1907. In three vols. Edited and arranged by the Hon. General Secretaries, James Kerr, M.A., M.D., D.P.H., and E. White Wallis, F.S.S. London: Offices of the Royal Sanitary Institute, Margaret Street, W. 1908. Price 5s. each vol.; complete in three vols., 12s. 6d.; bound, 15s. net.

studied by all teachers and those responsible for the conduct of schools and the care of school-children. The work of the editors has been a peculiarly heavy and trying one, but they have won the distinction of conspicuous success.

Among new works dealing with the medical inspection of school-children, a foremost place must be given to that just issued by Dr. Luther H. Gulick and Mr. L. P. Ayres.[1] It forcibly presents the argument for and nature and aims of medical inspection, gives details and forms for its practical conduct, discusses administration, finance, and the legal and other aspects of the subject. Not the least valuable feature is the bibliography. There are Appendices on "Suggestions to Teachers and School Physicians regarding Inspection," "A Typical Set of European Blanks and Forms," and "Rules issued to Medical Inspectors of Schools." The work is a notable one, and should be in the hands of all responsible for the physical examination of school-children on both sides of the Atlantic.

Members of the staff of the West London Hospital have issued in convenient booklet form a reprint from the *Medical Officer* of a series of lectures recently delivered by them on Medical Inspection of School-Children.[2] Dr. A. Saunders deals with the General Scheme of Inspection; Dr. P. S. Abraham, Examination of the Skin; Dr. Kenneth Scott, Eyes; Dr. H. J. Davis, Ear, Nose, and Throat; and Mr. H. Lloyd Williams, Teeth. Although restricted in outlook and presented rather from the standpoint of the specialist than the school doctor, this little volume is likely to be of suggestive value, and might well be expanded into a really practical manual.

We desire to specially commend to all medical officers of schools a most systematic and serviceable little directory to a complete and scientific examination of school-children which has been compiled by Dr. C. J. Russell McLean.[3] It is a syllabus eminently practical, and will be invaluable to recently appointed school doctors.

WORKS FOR MEDICAL PRACTITIONERS AND SANITARIANS.

Several excellent dictionaries of medical treatment have been published of recent years, but perhaps the smallest and most concise, and, as far as it goes, the most practical, is that just issued by Dr. Arthur Latham.[4] Within the limits of a small handbook he has compressed into sections, alphabetically arranged, suggestions and directions for the management of nearly all the medical cases likely to come under the care of the general practitioner. As might be expected from the author's special experience of chest cases, the section dealing with pulmonary tuberculosis is particularly sound and

[1] "Medical Inspection of Schools." By Luther Halsey Gulick, M.D., Director of Physical Training, New York Public Schools, and Leonard P. Ayres. Pp. 276. New York: Charities Publication Committee, 105, East Twenty-second Street. 1908. Price $1.00.

[2] "The Medical Inspection o School-Children." Pp. 62. London: *The Medical Officer* Offices, 36-38, Whitefriars Street, E.C. 1908. Price 1s. net.

[3] "Guide to the Medical Inspection of School-Children." By C. J. Russell McLean, M.D., D.P.H. London: The Sanitary Publishing Company, Ltd., 5, Fetter Lane, E.C. 1908. Price 6d.

[4] "A Dictionary of Medical Treatment." By Arthur Latham, M.A., M.D., F.R.C.P. Pp. 325. London: J. and A. Churchill. 1908. Price 6s. 6d. net.

helpful. Under Hæmoptysis no reference is given to amyl nitrite—a serious omission. The volume has been designed for "students and junior practitioners," but we consider it a book which may well find a prominent place among the reference works of every practitioner. In the next edition a complete index should be added.

Dr. Gilbert E. Brooke, whose long experience both in the East and the West has well fitted him for such a task, has compiled a very handy, compact, and yet comprehensive work on tropical medicine which should prove popular with medical officers whose duties call them abroad.[1] It deals with the general hygiene of the tropics, medico-biology, and descriptions of tropical diseases, arranged in alphabetical order most convenient for ready reference. A section is also devoted to practical hints on microscopy, photography, disinfection, and the preparation of blood-films. An extensive series of Appendices contain much information likely to be useful to those in the foreign field. The work contains the maximum of information in the minimum of space, and should be the companion of every doctor going abroad.

Dr. A. Maitland Ramsay has collected into volume form an interesting series of post-graduate lectures delivered last year at the Glasgow Ophthalmic Institution.[2] His aim has been "to give my personal clinical experience and to emphasize the importance of the influence of diathesis on the causation and treatment of diseases of the eye." An illustration of a scrofulous child infected by tubercle is given, and in a chapter on the scrofulous diathesis the characteristics of these "candidates for tuberculosis" are well delineated.

Dr. George M. Gould has gained world-wide renown as a voluminous and versatile medical writer, and his "Borderland Studies"[3] afford abundant evidence of his wide-reaching knowledge and exhaustless ingenuity and suggestiveness. The present volume consists of reprints of fourteen miscellaneous addresses and essays pertaining to medicine and the medical profession and their relations to general science and thought, and includes a most helpful and well-illustrated "History of the House," suggestions for "A System of Personal Biologic Examinations into the Condition of Adequate Medical and Scientific Conduct of Life," notes on "The Life-Study of Patients," "The Seven Deadly Sins of Civilization," "King Arthur's Medicine," "Intellectual Needs of American Growth," "History and Psychology in Words," "Vocation and Avocation," the titles of which but faintly indicate their general interest and personal service.

Dr. Graham Renshaw's natural history essays have for long been known and highly appreciated by the select few; but, if we are not much mistaken, his new work, "Animal Romances,"[4] will give him a unique place among the true poet-naturalists. Here he has suc-

[1] "Tropical Medicine, Hygiene, and Parasitology. A Handbook for Practitioners and Students." By Gilbert E. Brooke, M.A., L.R.C.P., D.P.H., Port Health Officer, Singapore. Pp. 498. With numerous illustrations, including 26 plates. London: Charles Griffin and Co., Ltd. 1908. Price 12s. 6d. net.

[2] "Diathesis and Ocular Diseases." By A. Maitland Ramsay, M.D. Pp. 184. With 17 plates. London: Baillière, Tindall, and Cox. 1909. Price 3s. 6d. net.

[3] "Borderland Studies." By George M. Gould, M.D. Vol. ii. Pp. 311. With illustrations. Philadelphia: P. Blakiston's Son and Co. 1908. Price $1.50 net.

[4] "Animal Romances." By Graham Renshaw, M.B., F.Z.S. Pp. 206. Illustrated with 26 plates. London and Manchester: Sherratt and Hughes. 1908.

ceeded by a truly remarkable series of photographs in portraying animals living and moving in their natural environment. His descriptions are prose-poems, fervid with a love of wild nature and vivid in their insight into the habits and life-history of the undomesticated animals of the forest. The work is a remarkable one, and marks the writer as a genius for understanding the ways and wonders of the world of beasts.

Mr. Charles R. Gibson has written a work on modern scientific conceptions and achievements which will be a favourite alike with doctor and layman.[1] It is a fascinating account, in popular and easily understood, lucid and precise language, of the nature of matter, electricity, light, heat, and other natural phenomena. The new knowledge regarding electrons and the construction of the atom is revolutionizing scientific thought, and the ordinary worker will here find the latest conclusions of the best scientific investigators attractively expressed in non-technical language. The chapters on the X Rays, the Discovery of Radium, and the Cause of Radio-activity, are particularly interesting.

The great encyclopedia and dictionary of medicine and surgery[2] which Dr. J. W. Ballantyne has for some time past been editing with conspicuous success has now been completed. In its ninth and penultimate volume many notable contributions appear, and we would give special praise to the timely article on "Medical Examination of Schools and School-Children," by Dr. Leslie Mackenzie. Dr. W. H. Wynn writes on the curious condition known as status lymphaticus. There are 68 lengthy articles in this volume, and 107 contain less than 1,000 words each. We count the names of fifty-eight contributors. The concluding volume fully maintains the high excellence which has been conspicuous throughout. Dr. Theodore Shennan contributes the article on Tuberculosis, written almost entirely from the pathologist's standpoint. Dr. Dawson Turner furnishes the section on X rays. The work, taken as a whole, is a remarkable one. It consists of 609 encyclopediac articles, 868 contributions of medium length, and 10,366 short articles or dictionary definitions—a grand total of 11,843 subject-headings, an average of nearly 1,200 per volume. The work is to be kept up-to-date by the regular issue of a *Quinquennium of Medicine and Surgery*, the first issue of which is promised immediately. We most heartily congratulate Dr. Ballantyne on the successful completion of an almost Herculean task. Truly he has graduated with high honours as a master of editorship.

The new edition of Sir Clifford Allbutt's monumental "System of Medicine,"[3] in the preparation of which he is being ably seconded by Dr. H. D. Rolleston, is progressing with commendable promptitude. The last volume before us fully manifests the high standard of excellence which has been maintained throughout. It deals with diseases

[1] "Scientific Ideas of To-day." By Charles R. Gibson. Pp. 344. With 42 illustrations and diagrams. London: Seeley and Co., Ltd. 1909.

[2] Green's "Encyclopedia and Dictionary of Medicine and Surgery." Vol. IX. Rhinoliths—Thermotaxis. Pp. xi, 600. Vol. X. Thiersch—Zymotic. Pp. xii, 609. Edinburgh and London: William Green and Sons. 1908. Price 15s. net each vol.

[3] "A System of Medicine." By many writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., and Humphrey Davy Rolleston, M.A., M.D., F.R.C.P. Vol. IV. Part I. Pp. 764. London: Macmillan and Co., Ltd. 1908. Price 25s. net.

of the liver and gall-bladder, the pancreas and ductless glands, and kidneys. Dr. W. Hale White writes on tuberculosis of the liver, and Dr. G. Newton Pitt on tuberculosis of the pancreas. The printing, paper, and general get-up of the work reflect the highest credit on the publishers.

We are glad to welcome Dr. E. W. Goodall's new edition of the excellent work on "Fevers," as they used to be called, which he, in conjunction with the late Dr. J. W. Washbourn, issued originally in 1896.[1] The work not only maintains its high excellence, but has been brought up-to-date and generally improved, and new chapters have been added on glanders, cerebro-spinal fever, and plague. We have no hesitation in commending this handsome volume to medical practitioners as undoubtedly the most practical, modern, and complete treatise on the subject of infectious fevers. The numerous and beautifully executed reproductions of photographs greatly enhance the clinical value of the work.

The fact that Dr. Burnett Ham's compact and concise little manual of sanitary law[2] has reached a fifth edition proves that it is beyond the praise or blame of a reviewer. It is, in fact, a thoroughly reliable and most helpful aid to candidates for the Diploma of Public Health, and will be of service to all engaged in practical sanitary reform. The present edition has been edited by Drs. K. W. Brown and Eyre.

The dietetic management of diabetics calls for patience, ingenuity, and knowledge, but culinary skill is essential. This Mr. Herman Senn goes far to provide in his excellent manual on diabetic diet and cookery, in which he gives a valuable collection of recipes and practical information regarding the preparation of menus.[3] It is a guide to the practitioner and a directory for the cook.

The Studio for some time past has laid all lovers of open-air life and the beautiful and hygienic in human habitations under a deep debt of gratitude, and this has now been added to by the issue of a charming volume on English gardens, which, with its coloured and photographic plates and literary sketch on "The Use of Gardens," is enough to make the most cross-grained reviewer enthusiastic. It is certainly a volume which we trust none of our readers will miss possessing.[4]

Mr. Conrad Beck has issued his Cantor Lectures on "The Theory of the Microscope" in brochure form, dealing with the optical construction of the instrument, the errors of lenses and their correction, errors due to diffraction, and practical applications of theory—an

[1] "A Manual of Infectious Diseases." By E. W. Goodall, M.D., Medical Superintendent of the Eastern Hospital for the Metropolitan Asylums Board, and the late J. W. Washbourn, C.M.G., M.D., F.R.C.P. Second Edition, revised and enlarged. Pp. 426. With plates, diagrams, and charts. London: H. K. Lewis. 1908. Price 15s.

[2] "A Handbook of Sanitary Law for the Use of Candidates for Public Health Qualifications." By B. Burnett Ham, D.P.H., M.D., M.R.C.S., L.R.C.P., Commissioner of Public Health for Queensland. Fifth Edition. Pp. 175. London: Ash and Co., Ltd. 1908. Price 2s. 6d. net.

[3] "Manual for Diabetic Diet and Cooking." By Ch. Herman Senn. Pp. 63. London: The Food and Cookery Publishing Agency, Westminster, S.W. N.d.

[4] "The Gardens of England in the Midland and Eastern Counties." Edited by Charles Holme. The special Winter Number of *The Studio*, 1908-09. London: Offices of *The Studio*, 44, Leicester Square. Price 5s. net.

erudite and highly technical study, which will be of value to microscopists.[1]

The theory and practice of breathing in relation to speaking and singing, and in the maintenance of health and the treatment of disease, give rise to much discussion and difference of view and divergence of practice. The Rev. Eric Robertson's monograph will be studied with interest.[2] It consists of lectures on "Clergyman's Sore Throat," delivered at the request of Professor Chiene to the Class of Surgery in Edinburgh University, and "A Plea for the Universal Teaching of Deep Breathing," given to the Class of Clinical Medicine in the Edinburgh Royal Infirmary. Exercises are suggested which it is contended are "sufficient to make a weak-voiced person into a strong-voiced person, if that person works at them with reasonable determination."

Lovers of art, whether for the adornment of the home or the hospital, or for educational service in the school, should obtain the beautifully executed and illustrated catalogue of reproductions issued by Hanfstaengl.[3] The new Catalogue of Modern Art has a cover designed by Walter Crane, and a pictorial supplement containing 624 illustrations.

The *Medical Review* is a monthly journal furnishing excellent abstracts and summaries of the more important articles appearing in contemporary medical periodical literature. Under the judicious editorship of Dr. Conner it has won much popularity among busy medical practitioners desirous of keeping abreast of the times. An analytical index of the ten volumes has just been issued,[4] and reminds one of the famous and invaluable "Digest" of the late Dr. Neale. Its preparation has entailed enormous labour, and we congratulate all concerned in its production.

OFFICIAL AND PERIODICAL PUBLICATIONS.

Dr. Hermann M. Biggs, the General Medical Officer of New York, has kindly favoured us with a copy of the remarkable collection of documents relating to the anti-tuberculosis movement as carried out in the metropolis of the West.[5] The work is a monumental one of which all concerned in its preparation may be justly proud. It is the most complete presentation of a systematic and scientifically conducted scheme in working which we have yet seen. New York truly, in this matter, may claim to lead the world. Every medical officer

[1] "The Theory of the Microscope." By Conrad Beck, F.R.M.S. Pp. 59. London: William Trounce, 10, Gough Square, Fleet Street, E.C. 1908. Price 1s.

[2] "The Cure of Bad Throats by Good Breathing: A Plea for Nature in Therapeutics." By Eric Robertson, M.A. Pp. 56. Windermere: A. W. Johnson and Son. 1908.

[3] "Hanfstaengl's Catalogue of Reproductions. Part I. Modern Art. From Hogarth to the Present." Pp. 167, and 52 plates. London: Franz Hanfstaengl, 16, Pall Mall East, S.W. N.d. Price 2s. 6d.

[4] "An Analytical Index of Volumes I. to X. of the *Medical Review*, and A Digest of the Facts important to the Practitioner in the Medical Periodicals of the World, 1898-1907." Pp. 201. London: The *Medical Review*, 66, Finsbury Pavement, E.C. 1908. Price 7s. 6d. net.

[5] "How the Department of Health of the City of New York is Fighting Tuberculosis." Prepared for the International Congress on Tuberculosis, Washington, D.C., September 21 to October 12. Issued by the Board of Health, 1908.

who wants inspiration and ideas should study this collection of official publications. Dr. Biggs furnishes an admirable "Brief History of the Campaign against Tuberculosis in New York City." The campaign includes: Notification and registration of patients, free bacteriological examination of sputum, educational measures of many and varied kinds, visitation and supervision of cases, free disinfection, provision of nutrients, institutional treatment, segregation, enforced hygienic regulations, research-work, etc. The masterly and magnificent way in which the fight is being carried on is fully indicated. Copies of the various documents in German, Italian, Yiddish, Ruthenian, Slovak, Polish, Bohemian, and Chinese are given. The various circulars furnish models which might well be followed by all civilized countries. We would particularly commend the "Handbook of Help for Persons Suffering from Pulmonary Tuberculosis (Consumption)" and "The Sanitary Code of the Board of Health of the Department of Health of the City of New York." We desire to tender Dr. Hermann Biggs and his colleagues our enthusiastic congratulations on this noble example of well-ordered, suggestive, and scientific anti-tuberculosis effort.

The official report of the Government delegates to the International Congress on Tuberculosis at Washington has just been issued as a Parliamentary Paper.[1] It is signed by Dr. Arthur Newsholme, Medical Officer of the Local Government Board; Mr. J. Patten MacDougall, Vice-President of the Local Board of Scotland; and Mr. T. J. Stafford, Medical Commissioner of Ireland. It details the resolutions adopted at the closing session of the Congress, and furnishes notes on the compulsory cases of pulmonary tuberculosis, co-operation between official and non-official agencies for the prevention of tuberculosis, relationship between dispensaries, sanatoria, and hospitals for advanced cases, educative effort against tuberculosis, and bovine and human tuberculosis. Evidently our British official delegates have been considerably impressed with the advance which America is making in anti-tuberculosis matters. It is to be hoped that this modest and all too meagre report "presented to both Houses of Parliament by command of His Majesty" may have some beneficial influence with the statesmen of this slow-moving and old-fashioned country.

The publishers of the *Sanitary Record* have for twenty-seven years laid scientists and sanitarians under a debt of gratitude by the annual issue of their year-book and diary.[2] It contains details concerning various societies more or less connected with public health affairs, a summary of sanitary legislation in 1908, particulars of Government departments, practical memoranda and blotting-paper interleaved diary—all indispensable for the officers of health and practical sanitation.

Dr. H. S. Lunn has issued a convenient little illustrated mannal,[3] giving full details of the series of delightful tours which he has organized for the present year.

[1] "Tuberculosis (International Congress of 1908)." Pp. 18. London: Wyman and Sons, Ltd. 1909. Price 1½d.

[2] "The *Sanitary Record* Year-Book and Diary for 1909." London: The Sanitary Publishing Company, Ltd., 5, Fetter Lane, E.C. Price 2s. 6d. net.

[3] "The Travel Handbook and Calendar for 1909." Part I. Edited by Dr. Henry S. Lunn. London: 5, Endsleigh Gardens, N.W.

PREPARATIONS AND APPLIANCES.

A COMBINED BED-REST.

We have recently had an opportunity of examining an ingenious contrivance for invalids invented by Mr. James Taylor.[1] Its chief features are well indicated in the accompanying figure. The Bed-rest is fixed to the head of the bed, and is readily adjusted to meet the requirements of the patient. A table attachment can be lowered over the head, and rests on the bed for reading or writing, and yet allows freedom for the limbs. This combined bed-rest should become very popular.

THE DISINFECTION OF A CONSUMPTIVE'S APARTMENT.

Each room and ward of a sanatorium and every apartment constantly used by a consumptive should be periodically disinfected. This is commonly neglected, and even when some attempt is made no guarantee is usually forthcoming to show that the process of disinfection has been effectively carried out. Messrs. Parke, Davis, and Co. have just introduced a simple, convenient, and reliable means for disinfection of a room.[2] Formaldehyde vapour is employed. This possesses great penetrative power, and is free from bleaching action. The action of the Formanganate Disinfector is based upon the fact that the addition of potassium permanganate to a solution of formaldehyde causes the evolution of formic aldehyde. Under ordinary circumstances this interaction is violent, but the manufacturers of the Formanganate Disinfector have overcome this disadvantage by incorporating an inert diluent with the permanganate, and moulding the mixture into a solid form, which secures gradual contact of the chemical with the solution. Thus, when the bottle of fluid which forms a part of the outfit is poured into a metal bucket or deep dish, and the briquettes of potassium permanganate are added, the evolution

[1] Manufactured by Messrs. Braun and Co., 1, Northdown Street, King's Cross, London, N.

[2] The makers, Messrs. Parke, Davis and Co., of 50, Beak Street, Regent Street, London, will be pleased to give further information.

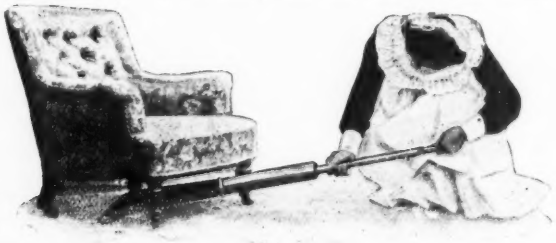
of gas goes on quietly and continuously, and one can leave the room without the danger of asphyxiation entailed when using sulphur, and with confidence in the completeness of the process; whereas with sulphur one may find on opening up the room that the combustion had soon ceased, and therefore the operation has to be gone through again. The new method is worthy of fullest confidence. It has also been pronounced to be the best means of disinfecting railway carriages. A commendable feature is the fact that all that is required for thoroughly disinfecting 1,000 cubic feet of space (excepting the metal bucket, which can generally be obtained on the spot) can be carried in a portable package measuring $3\frac{3}{4}$ by $3\frac{3}{4}$ by $10\frac{1}{4}$ inches.

A NEW SANATORIUM CHART.

We have received specimens of a new chart for sanatorium use, designed by a superintendent of a large sanatorium and of so convenient a form that records of each case may be kept in uniform manner for three months and be readily available for reference.[1] Heavily-worked medical officers will find this chart of real service, and it might be used by practitioners in private practice with advantage.

THE "BOREAS" SWEEPER.

Dust is commonly the carrier of tuberculosis and other infectious diseases. The elimination of dust from the household is comparatively a modern problem. It certainly did not trouble our more remote



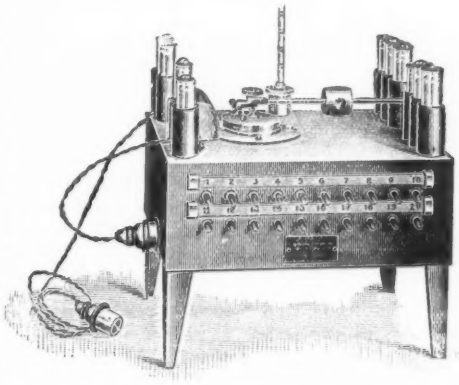
forefathers, with their rush-strewn floors. The coming of carpets was the main cause of all the trouble, and carpets since their introduction have been the harbourers of dust and dirt and their attendant microbes. A generation or two ago we began to awake to the unsanitary condition of the home, and the institution of an annual spring-cleaning was the result. Previous to that epoch many a carpet remained where it was laid till too worn for further use. Annual carpet-beating followed later—a great improvement, insuring clean carpets at least for some part of the year. Recently vacuum cleaning has been introduced —a vast advance on old methods. While not doing away with the

[1] The Sanatorium Chart (No. 19) is issued by Messrs. Bale, Sons and Danielsson, 83-91, Great Titchfield Street, London, W., bound in books of twenty-five, price 2s. 3d. each; or unbound, per dozen, 1s. 3d.; per 100, 7s. 6d.; per 1,000, 70s.

necessity for spring-cleaning, it allows more frequent dust-removal without the incidental upsets of sending carpets away to be beaten. It is, however, too expensive for many households, involving the use of complicated machinery and the disadvantages always incident to the incoming of strange work-people. At last a vacuum cleaner has been invented which one and all may use in their individual households—a vacuum cleaner which on the weekly turning-out day can be used on the carpet of the room, and will extract the dust and collect it weekly or daily, instead of allowing it to remain indefinitely until each carpet becomes a death-trap. The "Boreas" Sweeper[1] is just what we needed. There is no special exertion required to use it, and the dust is not blown up into the room, but collected into the machine itself. The "Boreas" weighs under 5 lbs., and is remarkably effective. By simply and easily gliding it backwards and forwards a strong suction-pump sets up a powerful air-current, sucking up all the dust from the carpet into the machine. It works just as well on upholstered furniture, curtains, or bedding. It enables one to extract and remove all the dust daily without expense and with the minimum of trouble, and so at last it would seem that homes may be kept free from dust all the year round. We have tested this ingenious, simple, and inexpensive pneumatic sweeper, and can strongly recommend it. Its manner of use is indicated in the accompanying illustration.

A NEW OPSONIC INCUBATOR.

Messrs. Charles Hearson and Co. have justly won a world-wide reputation for the excellence of their incubators and other appliances for clinical and other laboratory equipment. We desire to draw special attention to their unrivalled Opsonic Incubator,[2] the chief features of which are indicated in the accompanying illustration. No sanatorium can afford to be without this most efficient appliance.



We have also had an opportunity of testing some of the centrifuges supplied by this firm, which for excellency of workmanship and inexpensiveness, we imagine, cannot be surpassed.

[1] The "Boreas" Vacuum Cleaner is manufactured by the "Boreas" Pneumatic Sweeper Company, 91, Victoria Street, London, S.W. Price 39s. 6d., carriage free.

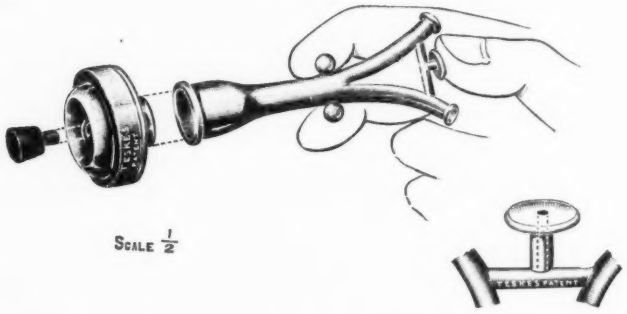
[2] Full particulars and prices may be obtained on application to Messrs. Charles Hearson and Co., Ltd., 235, Regent Street, London, W., and 68, Willow Walk, Bermondsey, S.E.

A NEW "SANATOGEN" PREPARATION.

In a former issue we have highly commended the combination of milk casein with glycero-phosphate of sodium known as "Sanatogen."[1] This we have used extensively and with great satisfaction in consumptive and other tuberculous affections, and in many diseases marked by malnutrition and loss of nervous power. There was, however, the drawback that not a few patients objected to its taste. This has been now met by the introduction of a new lemon-flavoured "Sanatogen," which is most palatable, and should much increase the popularity of this excellent nutrient and tonic, which we understand has the advantage of home manufacture, being prepared in Cornwall.

TESKE'S PATENT STETHONOSCOPE.

We have recently had the opportunity of fully testing this new instrument for auscultation, and are so pleased with the result that we commend it to the attention of all physicians, and especially to those engaged in chest-work in sanatoria and hospitals for consumptives. The chief features of the stethonoscope are shown in the accompanying figure.



The instrument comprises in itself three separate instruments—a stethoscope as used with binaural, a stethophonoscope, a phonoscope and localizer—and it can be carried in the waistcoat pocket. It transmits sounds without distortion, as there is no resonance of the instrument. It is provided with an automatic sound-regulator, so that the sound reaching the ear can be made more distinct at the user's will simply by moving the finger on the finger-rest. Means are provided whereby the instrument may be held in a firm and comfortable position, and sounds caused by the friction of the fingers avoided.[2]

[1] Full particulars and samples may be obtained on application to the Sanatogen Company, 12, Chenies Street, London, W.C.

[2] The Stethonoscope is supplied by the Hospitals and General Contracts Company, Ltd., 33 and 35, Mortimer Street, London, W. Price, nickel plated, 12s. 6d.

A DRAUGHT AND DUST EXCLUDER.

A novel EXCLUDER of draught, damp and dust has been recently introduced which is likely to be of service not only in ordinary houses, but in sanatoria and other large institutions.[1] It can be attached both to doors and windows, and especially for casement and French windows should be very helpful in keeping out rain.

A GARDEN TOOL FOR OPEN-AIR WORKERS.

Every consumptive and all having tuberculous tendencies should be encouraged to become enthusiastic gardeners. To such, and indeed to all lovers of the country-side and the garden, we desire to commend a very ingenious, useful, and invaluable companion, invented by Mr. A. C. Harris, M.A.[2] It consists of an attractive-looking cane, through which runs a steel rod which controls a pair of jaws, which can be opened or closed by pressure on a lever fixed to the side of the handle. It cuts and grips practically anything, and so can be employed not only to gather flowers and fruit, but for pruning and weeding. It saves back and hands, and vastly increases the working area, and not only for ladies, invalids, and the advanced in life, but for all practical workers, must prove invaluable.

A COMPRESS HEATER.

The preparation of compresses and fomentations require knowledge and manual dexterity. Both nurse and patient will welcome the new Haden's Patent COMPRESS HEATER, the chief features of which are shown in the accompanying figure.[3] It consists of a lower vessel containing the water, to be heated over a gas or spirit stove, and a perforated tray, through which the vapour from the boiling water passes, heating the compress or dressing placed upon it. It is simple in construction,

[1] The Stephens' Patent Excluder is manufactured by The Patent Draught, Damp, and Dust Excluder Company, Kidwelly, from whom all particulars may be obtained.

[2] The "Gripper" Garden Tool can be obtained from Mr. Alex. C. Harris, M.A., Queen's Road, Leicester. Price: 3 feet long, black finish, 5s.; or with green cane, selected parts and plated, 7s. 6d. Longer tools may be obtained at 1s. per foot extra.

[3] Messrs. Mayer and Meltzer, 71, Great Portland Street, London, W., supply Haden's Patent Compress Heater, in stout copper, practically indestructible, for hospital use, at 18s. 6d. A form, in tinned iron, for temporary use, is sold at 10s. 6d.

effective in use, and inexpensive. It saves time and strength, avoids risk of scalding, and is easily manipulated. No sanatorium or hospital should be without this excellent and ingenious appliance.

THE ABOLITION OF DUST.

Dust is oftentimes a distributor of death. In the spread of tuberculosis, dust undoubtedly plays an important part. The allaying and destruction of dust are necessary procedures in an effective anti-tuberculosis campaign. The Sanitary Floor Company have sent us specimens of their dust-laying preparations, which possess such hygienic advantages that we strongly commend them to the consideration of all responsible for the sanitary conduct of schools, libraries, halls, museums, and other public institutions.[1] DUSTOLIO is a combined dust-layer and disinfectant in fluid form, which can be applied to ordinary wood floors or to linoleum and cork matting. A convenient form of hand machine is provided for the easy distribution of Dustolio. DUSTOLIO EMULSION is a form of Dustolio to be used diluted with water, and is intended specially for schools, dancing halls, commercial stores and the like, where the darkening of the floors is to be avoided. DUSTOLIO SWEEPING POWDER, or "Bronil," is a dustless, antiseptic powder impregnated with "dustolio," and is used in the removal of dust and dirt from carpets, linoleum, wood floors, etc., without resorting to the old-fashioned and objectionable method of wetting. These sanitary preparations have found much favour in many quarters, and certainly deserve to be known by all medical practitioners, as well as by managers of public institutions and all health-preserving housewives.

HYGIENIC AND THERAPEUTIC PREPARATIONS.

"FLUINOL"[2] is a new aromatic fluorescent fluid-extract from the needles of various pine and other conifers. Added to a hot bath, it affords a particularly pleasing pine-like odour, and exerts marked soothing and tonic action. Not only for its æsthetic influence, but also for its distinctly medicinal effects, this preparation deserves to be known. We believe many invalids, as well as vigorous open-air livers and busy workers, will find "Fluinol" not only a welcome luxury, but a real aid in the preservation of health and the restoration of strength.

Messrs. Parke, Davis and Co. have favoured us with specimens of their NUCLEIN preparations.[3] The nucleins are complex proteid bodies, characterized by the large amount of phosphorus which they contain in the form of nucleinic acid combined with an elaborate basic substance. Generally speaking, the nucleins are insoluble in dilute acids, soluble in dilute alkalies, and resist peptic digestion. The

[1] Full particulars may be obtained from the Sanitary Floor Company, 117, Temple Chambers, London, E.C.

[2] "Fluinol" is manufactured at Basle by Alfred Schmidt, and is supplied in this country by Messrs. C. Richter and Co., 59-61, New Oxford Street, London, W.C. A bottle sufficient for ten large baths costs 3s. 9d.

[3] Full particulars may be obtained on application to Messrs. Parke, Davis and Co., 50, Beak Street, Regent Street, London, W.

nucleins and also nucleinic acid appear to act as powerful germicides. Hahn has shown that nuclein produces abundant leucocytosis. Nuclein preparations have been administered with apparent benefit in pulmonary and other forms of tuberculosis, and have been used with good results in tonsillitis, streptococcic and other infections, and in indolent ulceration. They are particularly helpful in many cases of stubborn boils. These nuclein preparations are made from yeast, and are put up in convenient capsules and also in solutions for oral and hypodermic administration. MERCUROL is a combination of mercury with nucleinic acid from yeast. It does not coagulate albumin, and is specially adapted for the local treatment of purulent inflammatory conditions of mucous membranes, as in urethritis, conjunctivitis, otitis, and the like.

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NOTES.

THE TUBERCULOSIS MEDAL.

"THIS badge of distinction was instituted by the "International Anti-Tuberculosis Association,"[1] and is given for special merit in the combat against tuberculosis. The medal has been prepared at the works of Messrs. A. Werner and Sons, from a model by the well-known Berlin sculptor, Ernst Wenck. On the one face is shown a Herculean figure kneeling on the body of a gigantic venomous serpent and about to deal it a deadly blow. The reverse represents a flaming altar with the double cross of the International Anti-Tuberculosis Association, surrounded by the Latin inscription, "Associatis inter-nationes contra tuberculosim constituta."

Medals, either of gold or silver, have been bestowed on Robert Koch, the late Professor Brouardel, Professor Bang, Dr. H. Biggs, the late Sir William Broadbent, the late Professor von Schrotter, the late Professor Althoff, Mr. Henry Phipps, Dr. Coni, Professor B. Fränkel, Professor Landouzy, and Dr. C. Theodore Williams.

MILK AND TUBERCULOUS INFECTION.

In view of promised legislation regarding our milk-supply, the Third Interim Report of the Royal Commission on Human and Animal Tuberculosis merits close study. It will be remembered that in the Second Interim Report the Commission expressed the opinion

[1] We are indebted to the courtesy and kindness of Professor Dr. G. Pannwitz, "Generalsekretär Der Internationalen Vereinigung gegen die Tuberkulose," for the loan of the blocks which have enabled us to reproduce the above interesting illustrations from the January number of TUBERCULOSIS. Berlin—Charlottenburg, 29 Knesebeckstrasse.—EDITOR *B.J.T.*

that a very considerable amount of disease and loss of life, especially among infants and children, must be attributed to the consumption of cow's milk containing tubercle bacilli. While the milk from cows having tuberculous udders was deemed dangerous, it was undecided whether there was any danger attaching to the milk of tuberculous cows in which the udder presented no evidence of disease. The Third Interim Report deals with experiments carried out to ascertain the infectivity of the milk and fæces of cows which had contracted tuberculosis in the ordinary way. Cows suffering from extensive tuberculosis of the lungs discharge considerable numbers of tubercle bacilli from the air-passages in the act of coughing, and some of these undoubtedly find their way into the milk. The experiments of the Commission indicate, however, that the excrement of cows suffering from tuberculosis of the lungs or alimentary canal must in future be regarded as much more dangerous than the matter discharged from the mouth or nostrils. Even in cows with but slight tuberculous lesions tubercle bacilli are often passed in the fæces.

MILK AND TUBERCULOSIS IN CHILDREN.

Much divergence of opinion and diversity of teaching exist in regard to the rôle of milk in the tuberculous infection of children. Of this we may be sure: tuberculosis in early life is common among those people who habitually suckle their offspring, and in those lands where the milk of animals is seldom or never given. This has been well brought out by the recent researches of Bruno Heymann, which are full of interest and so suggestive of the necessity for further investigation that we desire to draw special attention to them.[1]

Countries where no Milk is consumed, but in which Tuberculosis is Common.

Japan (Kitasato): Perlsücht only introduced thirty years ago, whilst tubercle is very common. Children never get milk, yet alimentary tuberculosis is very common.

Greenland: No tuberculous milk, yet phthisis very common, and tuberculous meningitis one of the commonest causes of death in children.

Asiatic Turkey: Raw milk never drunk even by adults, children breast-fed for two years; tuberculosis of all kinds very common and very virulent.

Roumania: Children breast-fed for a very long time; tuberculosis very rife, even in regions where there is no milk at all.

Faroe Islands: Perlsücht only introduced a few years ago; tubercle of all kinds very rife for a long time. Out of 342 cases, the infection could be traced to human infection in 262.

Egypt: Milk so dear that it is a luxury for the rich; tuberculosis very common, especially amongst the negroes and Berbers. It is only necessary to see one Berber expectorate to understand why it spreads so well.

[1] Heymann, B.: *Zeit. f. Hygiene*, Bd. lx., Hf. 3. A lengthy abstract is given in Epitome, *Brit. Med. Jour.*, January 9, 1909.

GOLD COAST : Children breast-fed or given a concoction of palm oil ; tuberculosis of all kinds rife.

Heymann comes to the conclusion that the great prevalence of human tubercle cannot be due to Perlsücht, but must be due to some other cause, and that our endeavours to combat the main source of infection must not be abated by a sense of security based on rigid milk and meat inspection. Clearly, all the possible sources, channels, and portals for tuberculous infection have need to be watched and guarded.

OPEN-AIR SCHOOLS AND CAMPS FOR CHILDREN.

With the coming of summer it may be hoped that there will be a great extension in the provision of open-air schools and camps for children. Wherever such have been established, parents, doctors, teachers, and children have all become enthusiastic supporters of the new departure. Dr. H. Lincoln Chase, Physician to the Board of Health Hospital in Brookline, Massachusetts, U.S.A., has sent us the following interesting notice of the Brookline Day Camp and School for Tuberculous Children : " This is the first of its kind established in the United States of America. Brookline is a town of some 26,000 inhabitants, and adjoins the city of Boston. The majority of the cases of tuberculosis originate in those districts where poverty and unsanitary housing conditions most prevail. The officers of the Brookline Friendly Society, of the Brookline Anti-Tuberculosis Society, and of the Health Department, united in an effort to arrest the development of tuberculosis among boys and girls found to be in the early stages of the disease. The Joint Committee of Management consisted of Arthur A. Cushing, M.D., Arthur A. Wordell, Francis P. Denny, M.D., and H. Lincoln Chase, M.D. The camp was located in the grounds of the Board of Health Hospital, situated in the most healthful part of the town, and well adapted for the purpose. An experienced Scotch nurse served both as nurse and teacher, and there was a good cook. The patients assembled each morning at the building of the Friendly Society, in the most crowded portion of the town, and were carried in a picnic barge, accompanied by the nurse and the cook, to the camp ground. About five in the afternoon they returned in the same way. The average daily attendance at the camp was seventeen. The arrangements for shelter from sun and rain were much the same as at the day camps for tuberculous adults elsewhere in this country. Facilities for taking baths were available, and were used regularly by all. Although outdoor rest, recreation, and good feeding were the prominent features of the camp, the children, under the direction of their teacher, were encouraged to take up Nature-study in as many forms as possible, the facilities for which were all about them. In this they were materially aided by a donation of books on natural history, kindly sent by Miss Hooper from the Public Library, on request of a member of the Committee of the camp. There were also donations of hardware, several sets of croquet, hammocks, dolls, and other toys, and also fresh vegetables. The camp opened July 7, 1908, and closed September 26, 1908. During this period the patients attended the camp daily except Sundays. The total expenses for the season were $740.59, of which

sum the Health Department contributed $581.50, most of the balance being received from public subscription. Mr. Wordell, Superintendent of the Friendly Society, attended to most of the business arrangements, and Dr. Denny acted as Treasurer for the Committee. We have on hand over $200.00 from public subscription toward defraying the expenses of the camp for this year. Seven of the children appear to have the progress of their disease entirely arrested, and, with one exception, all gained in weight and general condition. The physical examinations were made by Dr. A. A. Cushing. Shortly after the opening of the Brookline Day Camp and School for Tuberculous Children, Boston's model and slightly larger day camp and school was opened, under the immediate direction of Mr. Walter E. Kruesi, Secretary of the Boston Association for Relief and Control of Tuberculosis. This camp was soon followed by similar camps and schools in various parts of the country, all of which are reported to have been successful."

TENERIFFE AS AN INTERNATIONAL HEALTH RESORT.

Professor Dr. G. Pannwitz, the distinguished Secretary-General of the International Anti-Tuberculosis Association, has sent us some preliminary particulars of a scheme for the development of Teneriffe as a sort of international health station. The peak of Teneriffe, Canary Islands (13,000 feet), in the midst of the ocean, with purest air, eternal sunshine, and most advantageous dryness for all prophylactic treatment, has been chosen as the place for a new sanatorium. This is to be situated in the beautiful valley of Orotava, at the foot of the majestic peak. It is intended for convalescents, overworked and anæmic persons, nephritic patients, etc. Dr. Pannwitz and his coworkers have made important observations concerning the climatic conditions prevailing above the trade clouds, and it is proposed to establish therapeutic stations in the mountains at an altitude of 8,000 feet in connection with a regular aerological service. All desiring full particulars of this interesting scheme should apply to Professor Dr. Pannwitz, 29 Knesebeckstrasse, Charlottenburg, Berlin.

EIGHTH INTERNATIONAL ANTI-TUBERCULOSIS CONFERENCE AT STOCKHOLM, 1909.

We have received from Professor Dr. Pannwitz, the Secretary-General, the following particulars: According to arrangements made with the Svenska Nationalföreningen mot Tuberkulos, this year's Conference will be held at Stockholm from July 8 to 10. Connected with it will be an exhibition more particularly illustrating measures for the care of tuberculous families, especially of the healthy children. Suitable exhibits should be sent early. Applications, stating space required, should be forwarded to the Svenska Nationalföreningen mot Tuberkulos, 3, Norrlandsgatan, Stockholm, C., by or before May 1, and accepted exhibits should be received by July 1. After the Conference an excursion of several days' duration for about sixty members is planned to the North of Sweden, to visit several sanatoria, important industrial establishments, and other sights. A

number of short trips will also be arranged. Intending visitors to the Conference are requested to send their applications, not later than May 1, to the International Anti-Tuberculosis Association, 29, Knesebeckstrasse, Charlottenburg, Berlin. The following is the provisional programme :

Wednesday, July 7.—2 p.m., business meetings : (1) Inner Council ; (2) Committees. 9.30 p.m., reception.

Thursday, July 8.—10 a.m., first inaugural meeting of the Conference. 11 a.m., second meeting of the Conference : (1) Care of Tuberculous Families, especially of the Healthy Children. 4 p.m., Invitations.

Friday, July 9.—From 10 a.m. to 1 p.m., third meeting of the Conference. 2 p.m., continuation : (2) Report of the Committee on Sanatoria ; (3) Application of Specific Means in Tuberculosis Diagnosis and Therapy ; (4) Tuberculosis in the Schools ; (5) Reports proposed. Evening : Banquet.

Saturday, July 10. — 10 a.m., fourth and closing meeting : (6) Reports on the Progress of the Anti-Tuberculosis Campaign in Various Countries.

Sunday, July 11.—Beginning of excursions.